Mental Health and Physical Activity 1 (2008) 32–39

Contents lists available at ScienceDirect

Mental Health and Physical Activity

journal homepage: www.elsevier.com/locate/menpa

The perceived influence of an exercise class intervention on the process and outcomes of post-traumatic growth

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ARTICLE INFO

Article history:
Received 20 December 2007
Received in revised form 16 June 2008
Accepted 16 June 2008

Keywords:
Post-traumatic growth
Breast cancer
Physical activity
Exercise programme

ABSTRACT

Post-traumatic growth (PTG) is the phenomenon of positive change through the experience of trauma and has been linked recently to the participation in group based therapies. The aim of this study was the explorative documentation of the experience of PTG among breast cancer patients and the role, if any, that a group based physical activity intervention had in the attainment of growth. Ten female breast cancer survivors, from an already existing study, participated in an individual, open-ended interview. Employing interpretive phenomenological analysis (IPA), interviews were transcribed verbatim and analysed for themes that reflected the women's experience of growing from adversity. The women attributed much of their process and outcomes of PTG to the experience of participating in an exercise intervention programme during rehabilitation. The programme's success in facilitating PTG could be viewed as superior in some ways to other group based therapies in offering the women a safe environment, positive support system, opportunity to transfer new skills and heightened health awareness/behaviours. Future research should acknowledge and conduct further investigations into the role of physical activity interventions as facilitators of the PTG process.

1. Introduction

Post-traumatic growth (PTG) is the phenomenon of positive change following the experience of trauma and adversity or the return to a higher level of functioning than which existed before the trauma occurred (O'Leary & Ickovics, 1995). These positive changes or 'benefits' have been reported as a greater appreciation of life, a changed sense of priorities, warmer more intimate relationships with others, a greater sense of personal strength, recognition of new possibilities or paths for one's life and enhanced spiritual development (Tedeschi & Calhoun, 1995, 2006).[1] Tedeschi and Calhoun define a traumatic event as dependent on the extent to which it disrupts the personal narrative and leads to excessive cognitive engagement. Janoff-Bulmans' (1992) shattered assumptions theory claims that at the core of our inner world or personal narrative there are fundamental assumptions of a sense of safety and security. Trauma occurs when these assumptions are tested and our sense of security is 'shattered'. PTG is therefore defined as the process of rebuilding around the traumatic experience and thus acknowledging the trauma in a non-anxious way.

Although PTG following the diagnosis of cancer has been found to occur across age, socio-economic status and trauma type (Lechner et al., 2003; Stanton, Bower, & Low, 2006) there is evidence to suggest that certain variables can contribute to the attainment of PTG more than others. Social support and disclosure have been found to play a vital role in the process of growth (Cadell, Regehr, & Hemsworth, 2003; Lechner, Stoelb, & Antoni, 2008; Tedeschi & Calhoun, 2006) and both are featured in the main model of PTG (Tedeschi & Calhoun, 2006), shattered assumptions model (Janoff-Bulman, 1992) and the organismic valuing theory of PTG (Joseph & Linley, 2005). Social support can come from family, friends, other patients, medical staff, support workers, centers, etc., which in turn can highlight and increase appreciation for the people around them (Tedeschi & Calhoun, 1995). The mechanisms by which social support are believed to help are by affording patients the opportunity to discuss fears and worries, resolving issues out loud, and providing contact with other patients and role models. For example, Weiss (2004) found that those who had access to another breast cancer survivor who had experienced PTG had significantly higher benefit finding scores than those that did not.

In addition, to social support and disclosure, approach oriented coping (active, problem focused, positive reappraisal, support seeking) and avoidance coping (escape/avoidance, distraction in

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[1] It must be noted that the aim of this review is not to advocate suffering as a situation worth striving for, but rather to examine the phenomenon in which suffering and grief can co-exist with enlightenment and growth.

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doi:10.1016/j.mhpa.2008.06.003

the immediate aftermath of diagnosis) styles of processing have been linked to increased instances of growth (see Stanton et al., 2006). Stanton et al. (2006) also found that coping styles are dynamic over the course of the cancer process with 'alternating approach–avoidance' methods of coping being used from diagnosis to growth.

Recent research has also started to focus on group based therapies as facilitators of the PTG process. Lechner et al. (2008) found that, following trauma, group based programmes can help enhance psychological adjustment and overall QOL. Explanations for the success of these programmes centre on the fact that they inadvertently nurture factors associated with PTG (social support, role modelling, self-disclosure and releasing fears and worries). However, the existing literature on group based therapy facilitating PTG has been criticised for being serendipitous as interventions were not originally designed to foster PTG (Lechner et al., 2008). In addition, clinicians warn that the promotion of PTG within group based settings may induce pressure and expectations to think positive and the possibility of succumbing to the "tyranny of positive thinking" (Lechner et al., 2008, p. 225).

Physical activity programmes are an overlooked form of group based 'therapy' in the facilitation of PTG. Physical activity has recently become a safe and feasible adjunct therapy during and after cancer treatment by providing patients with a higher physical and psychological quality of life (Biddle, Fox, Boutcher & Faulkner, 2000; Campbell, Mutrie, White, McGuire, & Kearney, 2004; Courneya, 2003; Courneya, Mackey, & Jones, 2000; Courneya, Mackey, & McKenzie, 2002; Mutrie et al., 2007; Weert et al., 2005). The reported advantages of group exercise training are not only the enhanced physical benefits but the social aspects of group exercise which increase the enjoyment of the intervention (Emslie et al., 2007; Hennessy, Stevinson, & Fox, 2005; Sabiston, McDonough, & Crocker, 2007; Stevinson & Fox, 2006). Emslie et al. (2007) outlined that the benefits of this type of group intervention are that they offer a non-pressurised supportive environment and the freedom with which to self-disclose without the pressure and expectations that other group therapies may induce. However, for those patients who go on to report PTG, the extents to which the psychological, emotional and existential benefits of an exercise intervention can contribute to this process are not known.

Similarly, the current research on determinants of PTG has not considered the potential for the somatopsychic influence where there is a positive effect of the body on the mind (Biddle & Mutrie, 2008; Harris, 1973; Mutrie & Faulkner, 2004). In particular, the current main model of PTG (Tedeschi & Calhoun, 2006) has not considered the body's role as a determinant of PTG, with only one study to date, recognising this potential link (Sabiston et al., 2007). Although a new area of PTG research, there is evidence to suggest that positive emotions can have an effect on the process of PTG (Linley & Joseph, 2004). Consequently, it is plausible that by enhancing physical functioning and activity, which in turn enhances positive emotions, creates the potential for growth.

Despite these recurrent links between group based therapies, physical health and psychological adjustment (PTG), it is recognised that there is a severe neglect of the role of the body and health behaviours in the PTG literature (Park & Lechner, 2006). Therefore, the aim of this study was to investigate if engaging in a physical activity programme played a role in the experience of PTG within a group of breast cancer survivors. The participants had all taken an exercise programme as part of a randomised control trial study conducted by Mutrie et al. (2007). This study reported enhanced functional and psychological well-being at the end of a 12-week exercise intervention and at the six-month follow-up. Women who had undertaken the exercise programme and also experienced PTG were identified and asked to talk about their experience. Interpretive phenomenological analysis (IPA) was used since this approach offered a naturalistic method of assessing the impact and experience of a desired phenomenon. The degree to which the group exercise programme contributed to the known and previously unknown determinants of PTG was then assessed.

2. Method

2.1. Methodological paradigm

In this study, IPA is focussed on discovering the participant's individual experience of PTG through the occurrence of recurring themes. It is a phenomenological account of an experience through the person's own perception (Smith, Jarman, & Osborn, 1999). It is an inductive, non-hypothesis testing approach with the focus on the individual as the 'expert' in the experience (Willig, 2001). IPA differs from standard thematic analysis in that it is tied to phenomenological epistemology and has a far more structured method of application (Braun & Clarke, 2006). Throughout the interview session and the analysis, the researcher acknowledges their inevitable influence on the process and outcome of the data, moving away from the traditional scientific theoretical stance of realism, towards a more contextualist view of reality (Madill, Jordan, & Shirley, 2000). IPA has not yet been used to understand the phenomenon of PTG and has the unique opportunity to go beyond quantification of existential phenomena and delve into new areas of research with no pre-conceived hypotheses, thus enabling new and undiscovered elements of the phenomenon to be identified (Mayers, Naples, & Nilsen, 2005).

2.2. Participants

The participants were 10 female breast cancer survivors from the West of Scotland. They were part of a National Health Service (NHS) funded study on the benefits of physical activity as a rehabilitation strategy for women receiving treatment for breast cancer (Mutrie et al., 2007). The women's demographic variables are shown in Table 1 and their baseline and post-intervention statistics for the walk test, shoulder range of motion & Beck Depression Inventory scores in Table 2. When converted into percentiles the

Table 1
Characteristics of participants

Age group	
43–53	5
53–63	5
Marital status	
Married	10
Education	
A level	6
Degree	2
Professional qualification	1
Missing	1
Treatment type	
Mastectomy	2
Lumpectomy	8
Treatment plan	
Chemotherapy	1
Radiotherapy	1
Combination	8
Activity levels prior to diagnosis	
Some activity but not enough to meet description of regular activity given above	1
Regularly active but only began 6 months prior to diagnosis	2
Regularly active and was so for longer than 6 months prior to diagnosis	7

Table 2
Percentile scores for the 10 women, part of a sample of 100 women, in the intervention group on three of the seven representative measures

Part. #	12-Min walk test		Shoulder mobility range		Becks depression inventory	
	Baseline	3 Months	Baseline	3 Months	Baseline	9 Months
33	69.15	66.01	52.21	50.26	87.81	45.18
62	95.02	84.4	95.56	94.7	n/a	37.34
133	97.5	88.34	23.15	38.09	49.23	n/a
136	47.26	66.99	71.42	88.88	50.76	40.36
167	70.14	95.14	45.81	57.67	91.37	90.9
197	50.24	74.75	52.21	66.13	22.87	37.34
210	82.58	n/a	78.32	78.3	49.23	67.46
234	91.04	n/a	23.15	66.13	13.7	29.15
235	8.95	n/a	11.82	26.4	63.95	31.9
281	62.18	n/a	66	83.59	31.97	40.36

range of scores shown by this group of 10 did not show any trends at baseline and post-intervention. This indicated that in terms of fitness levels, depression and shoulder mobility they were not a unique sub-population within the Mutrie et al. (2007) study.

2.3. Sample selection procedure

Following NHS ethical approval, participants were recruited using purposeful sampling from the Mutrie et al. (2007) study. An information sheet was mailed to each participant in the exercise group ($n = 100$), via the original researchers, close to the time of the one–year follow-up. The information sheet described PTG and positive benefits as defined by Tedeschi and Calhoun's (2006) examples of growth. Women who believed they had experienced PTG phenomenon were invited to describe their experiences in an interview. Once the number of participants reached 10, the recruitment was stopped due to recommendations for smaller sample sizes within IPA ($n = 6$–10) (Smith & Eatough, 2006).

2.4. Procedure

Each participant was briefed on ethics and confidentiality issues and asked to complete a consent form. The interviews were open-ended, concentrating on one key question: 'What does finding positive benefits from your trauma mean to you?' The term 'positive benefits' was used interchangeably with PTG due to potential confusion and negative connotations between the psychological terminology post-traumatic 'growth' and the medical terminology of 'growth' meaning tumour. All subsequent questions followed from the participants comments. The interviewer used 'minimal probes' such as 'can you tell me more about…?', 'how did that make you feel?', 'can you explain further?' to fully understand the participants comments. In addition, the interviewer kept a brief list of topic areas that could be accessed if the interview became stilted. Once finished, the participants were debriefed. The interviews were taped using a Sony audio-cassette and lasted between 40 min and 2 h.

A reflective diary was employed by the researcher throughout. This qualitative tool is used after the session to record initial thoughts on the session (e.g. how it went, length, depth and quality), interviewee (e.g. what she wore, hair colour, personality and humour), interesting quotes and the interaction between the participant and researcher (e.g. report, personality clashes). This tool enhances the quality of the study and the data because it improves mental recreation of the interview long after it has taken place.

3. Analysis

To commence the interpretation process, the first transcript was read a number of times. The text was then analysed using 'exploratory coding', the process of line-by-line review focusing on description and content followed by language use and finally questioning the underlying meaning behind phrases and accounts of experiences (Flowers, 2006). Next, the exploratory coding was analysed for emergent themes, which are the most important/salient themes for the participant throughout the entire transcript. Each individual transcript was subjected to the same rigorous analytic procedure. Once all emergent themes had been identified, the themes were collapsed across the group to create a master list and subsequently entered into Nvivo (a qualitative software program) for storage purposes.

Validity of IPA cannot be attained through traditional quantitative methods (Vignoles, Chryssochoou, & Breakwell, 2004) and steps to ascertain validity (independent auditing, member checking, etc.) are usually taken for "completeness not convergence" (Madill et al., 2000, p. 10). Therefore, for enrichment purposes, two independent auditors were enlisted to review the data and enhance the overall coding process. They were asked to match a set of 30 quotes with 30 corresponding theme titles and comment on the appropriateness of the themes and/or suggest alternative titles. Results for each independent auditor included: matched (60%) (69%); unmatched (37%) (31%) and doesn't fit (3%). The auditor's suggestions were reviewed and discussed and revised titles emerged that appropriately matched the quotes. Those that 'didn't fit' were discussed until it emerged that the differences were due to misunderstandings of the quote in such an isolated context. Once clarified, the original titles were retained.[2]

The original analyses yielded eight main themes of the experience of PTG that were expressed across the group. These themes included in no particular order: the body, exercise class, existential re-evaluation, self-identity, philosophy change, society, lack of rumination and impact of trauma.

4. Discussion of findings

Analyses of the data showed that the phenomenon of PTG was indeed experienced by these 10 women from their breast cancer diagnosis. There was a general consensus in the improvement of their QOL and a heightened appreciation for things that were previously taken for granted. Examples of this come from Claire and Brenda[3] who both believed that their lives had become enhanced, more contented and re-prioritised in addition to discovering "what really matters in life". Isabelle has even gone as far to say that she is "grateful" to her cancer diagnosis for positively changing her life.

Claire
"*And I think I have a much better lifestyle now! [really?] Ya, definitely. That's, that's definite…So, em, ya, it's definitely changed us now…you know, just happy with what you've got. Contented with what you've got and very grateful for what you have*".
Brenda
"*And it's…and I feel my life's better! I know it sounds crazy (laughs), but I feel the quality of my life is better because (sniffles) I've prioritized (sniffles) and I know what matters*".
Isabelle
"*It (cancer) made…life very precious…and I stopped taking things for granted…Em…so…I'm grateful in that it has brought all these positive aspects into my life, its made me mentally aware of the positive side of my life.*"

Turning to the role of the physical activity programme, the following is a detailed account of how this programme was similar to

[2] For further reviews on validity and reliability in qualitative research, please see Smith (1996).
[3] For confidentiality purposes, the participants' names have been changed.

and in some ways superior to generic 'group based therapy' sessions in the experience of PTG. It should be noted that although important to their experience, the main theme of the exercise class was not the sole avenue for experiencing growth. For the purpose of this paper though, the 'exercise class' and its six sub-themes will be discussed and the remaining seven 'main themes' are to be subsequently reported elsewhere.

Four of the six sub-themes were perceived to be positive components of the exercise class which can be related to the process of PTG: saviour, safe environment, positive support system and somatopsychic influence. The remaining two, transference of skills and new health behaviours, were perceived to be positive outcomes from their participation in the exercise class, and ultimately from their trauma.

4.1. Saviour

Overall, the women viewed the exercise class as a sort of 'saviour' and an integral part in their rehabilitation and process of PTG. Although the word 'saviour' was not explicitly used, during the analysis the authors interpreted it as such and felt it was an appropriate umbrella in which to begin to describe the perceived influence of the class. For example, Kirsty speaks of how she believed the class helped her to cope through her recovery and eventual attainment of growth whereas Diane discussed the practical side of the class which gave purpose and structure to her week. This seemed to get her 'back on track' away from self-pity and despair, clearing the way for recovery and eventually growth. The class seemed to act as a sort of 'healthy distraction' or focus for Kirsty and Diane and gave purpose to their day.

Kirsty

"*I think the- and I think that the keep fit programme that was run, by the cancer research, was excellent. Very good…Och, I'll just say as I've said, as I've said before, I thought the, the programme of keeping fit certainly helped me…Well, helped me to cope with it.*"

Diane

"*It gave me structure during the week…So, it gave me structure. Em, and it helped me because of the camaraderie…It made me feel as if I was, I just wasn't sitting in the house. I was out there doing something…well, if I hadn't had somewhere to go to [exercise class] I would have taken long lies. And then I would have been in the house, staring into space, and I would have thought, 'why me?'*"

Lechner, Antoni, and Zakowski (in press) found that self-distraction, in the immediate aftermath of diagnosis, was associated with greater amounts of benefit finding. In this case, it seems as if the women used their participation as an active or purposeful form of coping which forced them to get out bed and to the classes, motivating recovery and eventual growth. The praise of structured physical activity as a 'saviour' for women during cancer treatment has been reported by other researchers, for similar reasons mentioned (Emslie et al., 2007; Hennessy et al., 2005; Sabiston et al., 2007; Stevinson & Fox, 2006). To date though, physical activity programmes have not been linked to contributing to PTG.

4.2. Safe environment

The women reasoned that the powerful influence of the class on their experience of PTG was due to the 'safe environment' it offered them; a place where they could go when they felt anxious, vulnerable or isolated. The class functioned as a safe environment in two distinct ways. First, there was the expertise of the instructors. Here, Justine recalls how the fear of her new body after surgery was a strong inhibitor of commencing physical activity due to the unknown limits of the body.

Justine

"*And of course, you have…the surgery and you are so and, it's like 'what can I do?', and you're like absolutely terrified to do anything…I mean I was actually frightened to do anything, because, I thought, I don't want to damage my arm, or you know, you've got- you've had surgery on your breast and all the rest of it and you're not sure what you can or can't do.*"

Commencement of a regular exercise routine is difficult to instigate and adhere to due to physical and psychological barriers, even for healthy adults (Biddle & Mutrie, 2008). However, this is multiplied when dealing with injury for fear of exasperating the condition (Adamsen, Midtgaard, & SØnderby Pedersen, 2001; Emslie et al., 2007; Hennessy et al., 2005). Thus, Justine and the other women experienced the class as a safe environment in which to undertake the activities due to the expert knowledge of the instructors. Cordova (2008) also suggests that education from expert sources can dispel anxiety and misconceptions surrounding cancer diagnosis and evoke approach oriented coping therefore facilitating growth. Hence, the proximity to expertise highlights another component of the exercise class or 'group based therapy' in the facilitation of growth. Emslie et al. (2007) also found that having expert instruction and classes tailored to suit the women's needs was a tremendously important benefit of their exercise class as it enhanced confidence levels in physical activity participation.

Secondly, the exercise class was a safe environment because it was place in which they could come to and feel 'normal'. Hennessy et al. (2005) also describe participation in group based activity as facilitating a sense of 'normality' and in the current study it did this by offering the women freedom from pity, humiliation, embarrassment from hair loss and most of all, isolation. Claire spoke about the confidence and new inner strength she gained within the class environment and the freedom of choice to wear, or not wear, her wig without any embarrassment or self-consciousness while having a "laugh".

Claire

"*And I'm thinking, 'oh my god!', you know? And, nobody's noticing you! Nobody can, nobody sees. You know, it's just you're feeling you've got this thing on your head. Em, so it's having confidence, and the exercise classes helped to give you that confidence. That there's other people doing the same thing, you're not alone, there's loads of people all in the same boat and we're all having a laugh about it. That's, that's what it was about*".

The ability to laugh and experience positive emotions in a safe environment has been linked with enhanced benefit finding following a traumatic event (Fredrickson, Tugade, Waugh, & Larkin, 2003; Linley & Joseph, 2004). Overall, these 10 women perceived this safe environment as a significant influence in their experience of PTG.

4.3. Positive support system

The physical activity classes also provided camaraderie. Research has repeatedly reported improved relationships with others as well as social disclosure and support as a determinant of the PTG process (Tedeschi & Calhoun, 2006). These new 'cancer friends' were a positive outcome of their trauma and were developed via the exercise class. The women repeatedly spoke of a 'bond' between themselves and the other women in the class due to an inherent understanding of their situation. Ussher, Kirsten, Butow, and Sandoval (2006) also reported a strong sense of community among participants, which she referred to as a "cancer family" (p. 2568). Kirsty described how the "dreaded illness" was a cohesive for bonding and affection towards each other.

Kirsty

"*Em, I would think, em, it's em…because we've all, well we've all had breast cancer…I just…I think it's because we've all had this dreaded illness, there's a bond…between us…And I just think it's this bond of…I don't know…maybe, perhaps affection in that, in a loose sort of term.*"

The regular support from others familiar with the trauma of dealing with cancer created a connection for present and future friendships which ultimately could enhance their QOL. Justine found that it was not only the support she felt during the class, but the informal chats with coffee and biscuits, after the exercise class, that was her biggest support system.

Justine

"*You'd have a chat and you'd say, you know, when, when did you have your treatment? 'Oh I had it yesterday, you know?'….And I –I certainly found it a great help and support, Em, because it wasn't just- you went to the class for an hour and…you know you went home. Then they had a chat afterwards. We would have a coffee afterwards and have a wee chat…but, I would think the biggest thing, mentally was the emotional support from other women at the class. Em…I really think that was really the biggest support.*"

Numerous studies have reported the benefits (enhanced confidence, coping skills, etc.) of social support groups during traumatic times (for example Adamsen, 2002; Midtgaard, Roth, Stelter, & Adamsen, 2006; Stevinson & Fox, 2006). However, support groups can also be perceived as "depressing, morbid and dwelling on illness" (Emslie et al., 2007, p. 6) and the people that attend them perceived as "needy, lonely, in poor mental health and obsessed with their illness". Adamsen et al. (2001) reported that males participating in an exercise intervention felt responsible to their group to attend and add to the experience of the class, and indeed was central to stimulating comradeship. In general, exercise class support groups enable the participant to choose whether or not to disclose information about their illness in a supportive and energetic atmosphere. For these 10 women, it was as a positive benefit to have people in their lives who understood them and an environment which gave them the choice in which to disclose their feelings or not. This choice of disclosure which the physical activity programme provided is something which other group therapies have neglected and maybe an important facilitator of PTG.

Two key processes within the positive support systems that have been associated with PTG are 'role modelling' and 'sounding boards' and the exercise class provided both of these.

4.3.1. Role modelling

Exactly how the women supported each other was in the form of 'role modelling' or upward social comparison (Tedeschi & Calhoun, 1995). Justine explains how the exercise class provided the members of the class with the opportunity to associate with women who were completing their chemotherapy treatment, giving them a visual 'goal' or 'role model' to aim for.

Justine

"*Em…the physical activity programme, was very positive! I got a lot out of that. Em, I have to say that was really wonderful. From the point of view of meeting other people in the same situation as myself, you know when I was going through my chemotherapy and going through all this treatment. Em, meeting people who were in the same boat and meeting people who were just finished and you think, 'oh I'll be there in a couple of weeks!' Or months or whatever. That meant quite a lot.*"

This type of role modelling has been found to have significant effects on the process of growth among cancer patients (Weiss, 2004) and group based interventions provide patients who otherwise have inadequate social support resources with access to other cancer survivors (Lechner et al., 2008).

4.3.2. Sounding boards

Another way in which these women supported each other was by using each other as 'sounding boards'. The group was an informal forum for discussion about fears and concerns that could not be expressed at home. Here, Florence talks about discovering links between her symptoms and the drugs via the other women's experience.

Florence

"*Because, em, although the side effects, everyone can be different, there were certain things you felt and thought…you didn't realize or you didn't actually know that maybe it was connected with any of the treatment that you were having. Or, em, the tablets or, you know…But, you when you share this with other people, 'oh ya, I felt like that as well, em, and it was things like that.*"

Justine talks about how it was a forum for discussion about fears and ailments.

Justine

"*And if somebody was worried about something, you know you could say, oh that happened me as well. You know, that was ok! That was nothing. So, we all got a lot of support.*"

It was also a way to learn insider tips via the other women in the exercise group. Diane talks about learning new methods to control sickness.

Diane

"*Em, and it helped me because of the camaraderie. Em, and…just talking about stages in other peoples', you know, illness. And you picked up hints on how to alleviate sickness, just 'oh that's good, oh I must try that' kinda thing*".

This 'forum' environment has been a frequently reported benefit of group based therapies (Lechner et al., 2008). Emslie et al. (2007) reported similar findings for the class as a forum for discussions on cancer related general to specific topics (e.g. government benefits, travel insurance and alternative therapies). Mayers et al. (2005) found that women with HIV reported greater psychological adjustment due to teaching and sharing their experiences with one another. This camaraderie and positive support system fostered via the exercise class was perceived to be a powerful influence on the women's experience of PTG.

4.4. Somatopsychic influence

Although the women never explicitly linked the general physical benefits following physical activity to their attainment of PTG, it did appear to have an indirect influence on their PTG. The somatopsychic influence (Harris, 1973) was mentioned repeatedly throughout the interviews, specifically, the women believed that by increasing their physical activity levels and improving their over physical health, they could manipulate themselves into feeling good mentally. Therefore, the positive emotions elicited from the participation in exercise could have had some impact on their ability to achieve PTG (Linley & Joseph, 2004). As research has consistently supported the physical and psychological benefits of exercise, especially during cancer treatment (Mutrie et al., 2007), more exploration is needed to create definitive links between these two variables.

The previous four themes focused on how the women perceived the class to influence their process of PTG. The following section reviews two outcomes which occurred as a direct result of their participation in the exercise class which could have impacted on their PTG. Again, this is an area neglected in the PTG literature to date.

4.5. Transference of skills

This theme was quite prevalent and pertained to the unique ability of the class to enhance the women's confidence levels and transfer these new confidence levels to the real world. By testing themselves physically as well as mentally, these women gained courage, belief and mastery over the same bodies that they feared only a few months earlier. The class returned and, more importantly, increased their confidence to return to work, face the public without the wig and continue exercising. An example of this comes from Claire as she talks about how her new inner strength, gained via the class and ultimately the trauma, helped her return to the workforce after her time off.

Claire

"*Em, so it's having confidence, and the exercise classes helped to give you that confidence…Em, but it's given me the confidence to go back to work…But I think the exercise classes, definitely, undoubtedly, helped, you know, to do that.*"

Thus, the classes seemed to have a direct influence on Claire's attainment of confidence and creation of a stronger self, which is a frequently reported PTG outcome (Tedeschi & Calhoun, 1995). Most of the women recalled the main reason for the shattering of their confidence to be the severely traumatic loss of hair. However, for these 10 women, the classes encouraged them to remove their wigs during the sessions (due to unpleasantness of a hot and itchy wig) with no embarrassment or feelings of isolation. Claire recalls the role modelling of bravery within the class and how it transferred to her facing the public minus her wig. This was an enormous achievement for Claire and the women attributed their new found courage outside of the class to the strength they acquired through the trauma and the class.

Claire

"*Just it gave you the confidence. Because, we, we would get hot doing our exercises, and take the wig off [yes]…And, I think, that helped you to, em, take the wig off earlier than you would have done. I, I was conscious of it, and I did have to be sort of pushed into, you know, going out without a wee bit at first, but it was because of the exercise classes that definitely, because that was you going out, em, with other people, very early on. And, em, not bothering. So then that gives you a wee bit of confidence to go somewhere else and not bother.*"

This secondary trauma of hair loss has been found to be a prevalent issue relating to gender identity and femininity (Emslie et al., 2007). Lemieux et al. (2008) conducted a review of the effects of hair loss on female cancer survivors and found it to be among the top most distressing or troublesome side effects of chemotherapy. Indeed, some women even went as far as to reject chemotherapy because they did not want to lose their hair (Tierney & Taylor, 1991).

The class also gave them the confidence for an easier transition to re-enter the world of physical activity after chemotherapy. The women believed that had they not "nipped it in the bud" they might not have had the self-assurance and ability to return to the physical activity after chemotherapy due to extreme fatigue, weight gain and loss of confidence. Brenda demonstrates this as she discusses the difficulty of recommencing activity without even a "wee level" of continued exercise.

Brenda

"*Also cause I kept up that wee level, it made me once I'd finished the chemo, and finished the radiotherapy, it was easier to start stepping it up back again [ok]. You know, whereas, I think if I hadn't done anything, I would have found it awful hard to get started [ya], you know?*"

Stevinson and Fox (2006) reported similar findings with participants' perception of the exercise class acting as a sort of catalyst for the reintegration of physical activity. Claire and Brenda's commentary on the enhancement and transference of confidence was a direct result of the class and gives researchers indications at the possibility of the exercise class as another facilitator of PTG.

4.6. New health behaviours

A prevalent theme of the analysis was the emergence of new health behaviours attributed to the occurrence of the trauma and the participation in the exercise class. These new health behaviours include increased exercise, changes in diet, and even vigilant self-breast examining (which has been reported to be under-performed within the normal population, due to the potential existential barriers involved with the exam (Goldenberg, 2005)). Florence and Claire both speak of increasing their activity levels and challenging their bodies in ways they had not previously done prior to their trauma. PTG research has not included any focus on health benefits following trauma, and yet from these quotes there is a clear attribution of new health behaviours to the trauma and the participation in the exercise class.

Florence

"*Eh, well, I think it was, um, I've always tried to keep fit, maybe not quite as much as I do now. Now I try and aim for something everyday.*"

Claire

"*I had never, I mean I teach gym in the school, but I mean I'd never ever, ever been to the gym. It was my first experience in the gym [with exercise]. Uh huh. With exercise…I was doing things I'd never done before…I was doing, I'd never gone to the gym before.*"

The class uniquely offered an opportunity to try new health related activities and promote continued use of these new habits. This is a new PTG outcome facilitated by group based intervention that is not addressed in the current literature. Although it cannot be established whether or not these women would have begun a physical activity programme without the aid of the intervention, it is clear that these women's experience of achieving new health behaviours was a result of this exercise intervention class following the trauma of diagnosis.

4.6.1. Responsibility for own health

The sudden diagnosis of cancer heightened the women's awareness of the need to take responsibility for their own health and health behaviours. This sudden consciousness is similar to Demark-Wahnefrieds "teachable moment" or "cue to action" (Demark-Wahnefried, Peterson, McBride, Lipkus & Clipp, 2000; Humpel, Magee, & Jones, 2007). Research suggests that there is a 'window of opportunity' in which health programmes and health practitioners must use to highlight healthy lifestyle changes and promote the patients' responsibility for their own health (Gritz, Fingeret, & Vidrine, 2006; McBride, Emmons & Lipkus, 2003). In this study, it is clear that the women's participation in the exercise class was bolstered by this window of opportunity and therefore enhanced awareness of their responsibility for their own health.

Florence

"*Em, I think to make me aware that, you know, I should be doing more exercise and…And it made me aware that, just everyday, em, things you do, you can out in some walking, you know. And even just a few minutes a day is better than nothing, you know?*"

This enhanced awareness of their responsibility for their own health is a novel PTG outcome stemming from the trauma of diagnosis and was fostered via the exercise class.

The participation in a health based intervention programme, the presence of an expert and the physical motions of a check up enhanced the probability of the women continuing their exercise routine and reflecting upon their overall health status. Gloria describes how the exercise classes were a direct influence on her maintenance of a healthy lifestyle as she was aware that she was being monitored and must therefore take a step back and take stock of her health. Gloria perceived her enhanced health functioning as a unique result of the participation in the exercise intervention and is another element of this type of group based programme that warrants further exploration.

Gloria

"*I guess the research programme was making me do it, but I said that earlier. Um…the benefits…in having, in talking to someone at programme times and reviewing how you've been, em, I suppose was useful. Even if it was only sort of the ticking off of forms, it would make you, ob- obviously immediately, you needed to take a step back and look, 'well how have I been?'*"

4.6.2. Body as a barometer

Finally, some of the women reported the innovative use of the body as a tool for monitoring their own health status. Gloria described how she now used her body, with the help of physical activity as a measurement for how her overall health is. Specifically, she had a walking route that she completed daily and when she found the route to be more difficult than usual, she would go to her doctor immediately. This reconnection with her body and use of it as a guide to monitor her overall health is a novel and positive outcome that transpired from her experience.

Gloria

"*It's a useful guide to me for how my physical health is…How long I can walk, and how far I can walk and, and how long it takes me. Because I still find myself, I have sort of peaks and troughs, physically. I'll have time where my energy level is just very way down. Em, and when that happens, well, I, I know right away by the fact that I can't quite manage my hard walk in the time that I normally would…So, I do it, to keep a monitor on my health and, and if it was, and if my energy levels were dropping for too long, I'd be going back and getting some blood taken, you know, even if I wasn't due for a check up.*"

Such new health behavior outcomes are the epitome of the PTG definition, surpassing the level of functioning (psychological, emotional or what is evident here, physiological) than which existed before the trauma occurred (O'Leary & Ickovics, 1995). Gloria and the other women seem to be functioning at a heightened physiological level (more active, more astute to their physical health) than before their diagnosis of cancer, learning this improved lifestyle via the exercise programme.

5. Conclusion

This study reviewed the experiences of 10 female breast cancer survivors who participated in an exercise intervention. The aim of this study was for the explorative documentation of the experience of PTG among breast cancer patients and the role, if any, the exercise class had in the attainment of growth. In summary, the women regarded the class as a sort of 'saviour' and there was evidence to suggest that this type of group therapy facilitated PTG in similar ways to previous findings (see Lechner et al., 2008) but also in new ways which have not been documented. The exercise classes provided a safe environment with expertise tuition, freedom from embarrassment and a warm environment in which to disclose fears, worries and problems. The transference of increased confidence from the class room to normal life fostered a new found inner strength. Positive outcomes achieved via the class were new health behaviours, a heightened awareness of their health and the importance of a healthy lifestyle and yet these have not been studied or properly recognised as important benefits from adversity. Ultimately, this study highlights the potentially unique influence of the exercise class on the process and outcomes of PTG. Thus, with regards to the 'bigger picture' in PTG research, there seems to be a place for physical activity group based programmes and issues relating to the body in the process of attaining and as an outcome of PTG; especially when the trauma is directly related to the body as in examples of cancer or illness.

The use of IPA was beneficial in extracting novel emergent themes from these women's experience of PTG. The strength of this study lies in the in-depth and personable accounts of 10 women's experience of PTG. IPA uses homogenous, self-selected (expert) sample in order to understand a specific group of people at an idiographic level. Using a homogeneous subset does not 'confound' the results (which implies a positivist, quantitative ontology) yet merely gives insight into a specific group of people and raises questions for further research to determine the possibility of PTG via physical activity. The results of the study therefore allow us to say something about this certain group in detail rather than all groups in general but points to issues which warrant further study.

It must be acknowledged that since the study was composed of a homogenous subset it creates limitations to the classic form of 'generalisation'. The participants were all white females, one-year post-completion of an exercise intervention. However, the influence of gender and time since diagnosis on the ability to experience PTG has produced non-significant results (Collins, Taylor, & Skokan, 1990; Fromm, Andrykowski, & Hunt, 1996; Stanton et al., 2006). Also, these women were part of a group that willingly signed up for the Mutrie et al. (2007) study, and were then subsequently allocated to the physical activity intervention. There is a definite possibility that the women from the control group could have experienced PTG with or without the element of physical activity. In addition, there could have been women within the exercise intervention group that did not experience PTG.

Furthermore, there is the challenge of determining whether it was the class or simply the activity that influenced experience of growth. Cordova (2008) posits that facilitation of growth can be achieved through the reduction of high physiological arousal using physically positive exercises, increasing a survivors "sense of control over their bodies and enhance the ability to observe, tolerate and at times regulate their thoughts and emotional reactions" (p. 195). On the other hand, Weiss (2004) found that there was a significant correlation between PTG and having contact with another who had experienced PTG suggesting that the role modelling and sounding board phenomenon within the class were the important elements of the growth process. Nevertheless, it seems that there was an interplay of the beneficial physical and psychological effects of the exercise itself and the emotional/psychological benefits of the class environment on the process of PTG.

The results offer a form of naturalistic generalisation, "results that are intuitive and empirically based on personal direct and vicarious experience" (Lincoln & Guba, 1985, p. 120). Thus, through the researcher narrative, we have been able to 'parallel actual experiences' thus "feeding into the most fundamental processes of awareness and understanding" (Stake, 2005, p. 454). Here, an exercise class was perceived to be one of eight main themes contributing to the experience of PTG, but the findings reveal how and why these 10 women perceived the exercise class to have been beneficial in their experience of PTG through components that have been previously reported and adding additional reasons for its success in the form of providing an environment where they could

choose to disclose, building confidence which could be transferred to other areas of life, giving them an opportunity to develop new health related activities, and enhancing their awareness and responsibility for their own health. Future research could extend the rich exploratory data reported within this study in order to develop more definitive links between group based physical activity interventions and the experience of PTG.

Acknowledgment

We would like to thank Professor Paul Flowers for his contribution in critiquing the manuscript.

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