The role of multiple group memberships and membership continuity on mental wellbeing amongst post-operative stoma patients.

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**Key points**

1. Stoma operations are a common elective surgery used to treat / reduce risk of cancer.
2. Maintaining group memberships and multiple memberships have been shown to improve health outcomes in various health domains.
3. Thirty one patients undergoing stoma surgery completed measures of perceptions of multiple group membership pre and post operation.
4. Levels of membership continuity and multiple group memberships predicted changes in negative emotions observed 2-4 weeks post-operation.
5. These findings suggest a need for patients undergoing stoma and similar operations to plan in advance how they will, where possible, adapt their group memberships.

**The role of multiple group memberships and membership continuity on mental wellbeing amongst post-operative stoma patients.**

Elective surgery to reduce cancer risk is often life-saving, but can have a number of negative physical and psychological side effects. Stoma operations represent such an elective procedure. The requirement for patients to use a colostomy pouch post-operatively means that many are unable to take part in activities previously available to them, and may lose touch with social groups which provide psychological and material support. Indeed, having a stoma increases the likelihood of social isolation[1] and a stoma that has been sited ‘badly’ combined with poor clinical care has also been linked to social isolation and other psychological problems[2]. In contrast, in other domains, maintenance of pre-existing memberships has been associated with positive health and well-being outcomes following both significant life transitions[3] and identity changes[4]. For instance, populations such as stroke survivors have been shown to benefit psychologically (through increased psychological resilience) from maintaining pre-stroke group memberships[5]. Similar findings have been observed amongst people who have acquired brain injury–with greater life satisfaction after the event observed amongst those maintaining their groups connections[3]. Parallel to this effect, it appears that having multiple social identities can increase resilience in the face of stressors[5]. This is thought to occur due to access to multiple sources of physical and psychological resources/support. The current research tests the relationship between stoma patients’ experience of maintaining group memberships and post-operative experience of negative emotions associated with depression. It also tests the extent to which multiple group membership (pre and post-diagnosis) relate to such mental wellbeing.

**Methods**

Patients (*N*= 31; 16 males and 15 females) scheduled for surgery that involved bowel resections and planned ostomy formation were recruited. The sample’s age ranged from 20 years to 84 years old (*M*= 55.55 years, *SD* = 15.81). The study employed a pre-surgery and post-surgery design which involved a baseline measure pre-surgery, a 2 to 4 week gap after the surgery takes place followed by a post-surgery questionnaire. Measures included scales capturing membership of multiple groups, perceived social isolation, levels of post-operative social continuity and a measure of negative emotions.

The Multiple Identities Questionnaire[5]: A Likert scale from 1 to 7 (1 = ‘*Do not agree at all*’, 7 = ‘*Agree completely’*) with the following items: ‘Before my diagnosis I belonged to lots of different groups’; ‘Before my diagnosis I joined activities of lots of different groups’; ‘Before my diagnosis I had friends who were members of lots of different groups’; ‘Before my diagnosis I had strong ties with lots of different groups’. This scale was repeated post-operation, substituting ‘before my diagnosis’ with ‘after my diagnosis’. Internal reliability of the scales were good for the pre-diagnosis measure (Cronbachs α = .79) and low but acceptable for the post-diagnosis scale (Cronbach α = .65).

Social Identity Continuity scale[5]: A 4 item Likert scale (1 = ‘*Do not agree at all*’, 7 = ‘*Agree completely’*) comprising the following items: ‘After my surgery I still belong to the same groups I was a member of before my surgery’; ‘After my surgery I still join in the same group activities as before my surgery’; ‘After my surgery I am friends with people in the same groups as I was before my surgery’; ‘After my surgery I continue to have strong ties with the same groups as before my surgery’. This scale was administered post-operation only. Reliability was good; Cronbachs α = .89.

Negative emotions questionnaire[6]: This scale comprise 7 items measuring frequency of experience of depression related emotions. Items were on a Likert scale (1= ‘*Infrequently’*, 9 = ‘*Frequently’*) and included depression, weariness, helplessness, lifelessness, sadness, unhappiness and anxiety. The internal reliability was good (preoperative Cronbachs α = .89, postoperative Cronbachs α = .91).

On the day prior to their surgery, the patient completed the first wave multiple identity, social isolation and negative emotions scales. Every patient returned to the hospital for a routine follow up check-up with either their surgeons or stoma specialist nurses, 2-4 weeks after discharge. Following this check, they completed the measures again, with the addition of the social group continuity scale. Every patient who completed the first wave also completed the second (0% attrition rate).

**Results**

Mean pre-and post scores can be seen in Table 1. A one tailed within subjects t-test revealed that levels of negative emotions increased post-operatively, *t*(30)= 1.74, *p* =.045.

Multiple regression was used to analyse the data with post-operative negative emotion as the criterion variable. Model 1 included age and gender. Model 2 added these additional predictors; pre-operative negative emotions and multiple memberships before and after diagnosis (such that changes in negative emotions are predicted by multiple group membership). Model 3 added group continuity (such that change scores in negative emotions are predicted by multiple group membership and also group continuity).

Model 1 ($\overbar{R}$2 = -0.07, *F*(2,28) = .045, *p* = .96) was not a significant predictor of post-operative negative emotions. Beta values for each predictor (for this and the following models) can be seen in Table 2. Model 2 significantly predicted levels of negative emotions, $\overbar{R}$2 = 0.70, *F*(5, 25) = 15.32, *p* < 0.001. Model 2 also predicted more variance than Model 1 (*F∆* (3, 25) = 25.42, *p* < 0.01). Model 3, was a significant predictor of negative emotions ($\overbar{R}$2 = 0.87, *F* (6, 24) = 34.32, *p* < 0.01), and also predicted more variance in negative emotions than Model 2, *F∆* (1, 24) = 32.57, *p* < 0.01. In model 3, decreases in perceived multiple group membership and group continuity both predicted increases in negative emotions

**Discussion**

In summary, these results suggest a significant post-operative increase in negative emotions following a stoma operation. The magnitude of this negative emotional experience was linked to group membership: Our findings show that changes in multiple group membership (i.e. variance in post-operative perceptions of multiple group memberships, controlling for baseline levels) and perceptions of continuity in group membership both independently predicted changes in the levels of post-operative negative emotions (e.g. levels of post-operative negative emotions, controlling for baseline levels). These findings support previous research which suggests maintaining multiple group memberships is important in reducing the psychological impact of events which result in significant lifestyle / capability changes. As such they are likely to be generalised to a variety of similar procedures.

The current finding has the practical implication that the more patients are able to maintain pre-existing group memberships, the better outcomes they will achieve. Although a variety of support mechanisms are available (e.g. community nurses, relevant support groups), which may generate new group memberships (noting that new identities have been theorised to improve outcomes in other areas[7]), more work could perhaps be done in preparing individuals to adapt the roles and involvement they have in pre-operative groups, such that they can be maintained post-operatively.

One key limitation of the current study is that the follow-up point was close to the operation date. One possibility is that the role of maintaining multiple group memberships may become less pronounced as patients adapt to their new lifestyle (for instance, by forming new memberships and by increased proficiency with stoma bags etc). In contrast, such effects may be magnified if negative emotions hamper attempts at adjustment. Thus, one avenue for research is to test for the effects of group membership on a longer timescale.

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Table 1: *Mean scores on scales taken by phase (standard deviations in parenthesis).*

|  |  |
| --- | --- |
|  | *Phase* |
| *Measure* | *Pre-operative* | *Post operative* |
| Negative emotions | 1.90 (1.13) | 2.16 (1.30) |
| Pre-diagnosis multiple group membership | 6.40 (0.65) | N/A |
| Post-diagnosis multiple group membership | 6.49 (0.54) | N/A |
| Group continuity | N/A | 6.36 (.23) |

Table 2: *Beta values for predictors of post-operative mental wellbeing in each regression model.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | β | *T* | *P(two-tailed)* |
| Step 1 | Age | -.05 | .27 | .79 |
|  | Gender | .03 | .17 | .87 |
| Step2 | Age | .41 | 3.60 | .001 |
|  | Gender | .05 | .43 | .67 |
|  | Pre-diagnosis multiple group membership | .13 | .99 | .33 |
|  | Post-diagnosis multiple group membership | -.22 | -1.62 | .12 |
|  | Pre-operative negative emotions | .99 | 7.53 | <.001 |
| Step3 | Age | .17 | 1.91 | .068 |
|  | Gender | .04 | .49 | .631 |
|  | Pre-diagnosis multiple group membership | .26 | 2.89 | .008 |
|  | Post-diagnosis multiple group membership | -.25 | 2.78 | .010 |
|  | Pre-operative negative emotions | .78 | 8.20 | <.001 |
|  | Post operative group continuity | -.48 | 5.71 | <.001 |