Violent, caring, unpredictable: Public views on survivors of brain injury

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Abstract

The purpose of the present work was to investigate how members of the public perceived survivors of brain injury. A 20-item list of attributes that could be used to describe characteristics of survivors of brain injury were given to 323 participants. One hundred and sixty-nine psychology students and 154 members of the public agreed to take part in the study. The effects of group (student and public), gender and socioeconomic status (low, moderate and high) on the attributes were assessed. Multivariate analysis of variance showed a statistically significant difference between the two groups with students holding more positive perceptions on 15 out of the 20 attributes. No effects of gender or socioeconomic status were found. The research suggests that members of the public hold less positive views on survivors of brain injury in respect to intellectual competency, ability to care and trustworthiness when compared to students.

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1. Introduction

There is currently a lack of research which seeks to investigate how members of the public perceive survivors of brain injury. This area of study is important if we are to understand public reactions to this group. Previous work has explored some of the attitudes held by members of the public towards survivors of brain injury (Linden, Rauch, & Crothers, 2005; Redpath & Linden, 2004). However, a great deal of additional work is needed to answer many basic level questions regarding the psychosocial impact of brain injury in a social context.

Whilst brain injury is classified as a physical disability it has much in common with mental illness. Both tend to be largely hidden from public view with little or no outward indications that the individual differs from other members of the community. It is only when members of the public begin to interact on a less casual basis that the effects of either condition may become apparent. The research on mental illness may thus prove informative in investigating how the public socially perceives survivors of brain injury.

Research on the influence of gender on public attitudes towards the mentally ill would largely suggest that women hold more positive attitudes than men (Chou, Mak, Chung, & Ho, 1996; Petrus & Kai-Fong, 2000; Philips, 1966;
Taylor & Dear, 1981). However, these findings have failed to be replicated in all cases (Cormack & Furnham, 1998; Granello & Granello, 2000). In a study exploring public attitudes towards survivors of brain injury, Linden et al. (2005) showed statistically significant differences between males and females while Guilmete and Paglia (2004) found no effect of gender on perceptions of traumatic brain injury (TBI). It would appear that the precise nature of the relationship between gender and attitudes towards survivors of brain injury is a topic which requires further investigation.

In a comparative study, Guilmete and Paglia (2004) investigated public misconceptions concerning traumatic brain injury (TBI). One hundred and seventy-nine participants were compared to three previous studies based in North America. Respondents were asked to agree or disagree with a number of statements about the possible causes and consequences of TBI. The authors report a lack of knowledge regarding moderate to severe TBI but increased awareness of mild brain injuries. They attribute this finding to the increased media attention given to sports-related injuries. However, such misconceptions are not solely limited to members of the public as survivors of brain injury have reported that employers, teachers, friends and relatives also fail to fully comprehend the difficulties they face in recovering from TBI (Willer, Allen, Liss, & Zicht, 1991).

Incidence rates of TBI are highest among those who are less financially able to cope (Kraus & MacArthur, 1999). The effects of socioeconomic status on public attitudes towards survivors of brain injury have been shown to be influenced by SES. Significant differences were found between male participants from high and low SES regions in Belfast, Northern Ireland (N.I.). This finding is supported by the 1991 social attitudes survey which demonstrated the importance of SES to social relationships in N.I. (Moxon-Browne, 1991). Papadopoulos, Leavey, and Vincent (2002) have demonstrated that lower social class is associated with negative attitudes towards the mentally ill in a cross cultural study between Greek-Cypriot and English populations.

Many researchers have utilised undergraduate psychology students as participants in their work. However, the appropriateness of this population as a model for the views and opinions of the general public is in question. A previous study by Redpath and Linden (2004) suggested that the higher standard of education and interest in the subject matter may lead to students being less representative of the wider population. Clearly both groups share a similar culture. However, the effects of education and age (undergraduate psychology students tend to be young adults) have previously been shown as predictive of community attitudes towards the mentally ill (Brockington, Hall, Levings, & Murphy, 1993). Nevertheless, researchers have also shown that education was not associated with misconceptions concerning TBI (Guilmete & Paglia, 2004). Whilst psychology students may not be truly representative of the public as a whole, they nevertheless can provide useful data regarding the views of young, well educated individuals. For this reason they will be employed as a comparison group in the present research.

The present study explores how members of the public and students perceived survivors of brain injury. This general research question was accompanied by three hypotheses. First, it was hypothesised that differences would exist between perceptions held by the general public and psychology students. Second, that differences would exist between males and females and third, that participants’ perceptions would differ depending on their socioeconomic status.

2. Method

2.1. Design

The study employed an independent groups design to explore differences in how psychology students and members of the general public perceived survivors of brain injury. The independent variables were comprised of group (students and public) gender, and socioeconomic status (SES) measured at low, moderate and high levels. Perceptions were measured using a 20-item questionnaire designed for this purpose. In addition, a scale used to test for social desirability was included (Strahan & Gerbasi, 1979).

2.2. Participants

A total of 323 participants agreed to take part in the study. This number consisted of 169 students and 154 members of the public. There were 58 males and 111 females in the student group who ranged in age from 17 to 41 (mean = 19.95). Forty-eight (28%) of these participants knew someone who had some form of brain injury. There were 71 males and 83 females in the public group who possessed a much wider age range (14–77, mean = 30.44). Forty-one (27%) members of this group knew someone who had sustained some form of brain injury.
SES was determined through postal code (see procedure section for further details). Fifty-eight participants either failed to include post code information or gave incorrect details. Data were available for a total of 265 participants. This was split between the two groups as 131 cases for the students, and 134 for the public. The data were divided into 3 categories representing low \((n = 88)\), moderate \((n = 88)\) and high \((n = 89)\) SES.

2.3. Measures

The authors were not aware of any currently existent scale which sought to explore perceptions of survivors of brain injury. It was thus necessary to construct a scale. The authors selected 20 attributes based on their face validity which were thought to be of social relevance. The participants were asked to respond on a five-point Likert scale where ‘1’ indicated strong agreement and ‘5’ indicated strong disagreement. Some of the attributes are shown below. For a complete list see Table 1.

**People with brain injuries can be unpredictable.**
**People with brain injuries can be aggressive.**
**People with brain injuries can be trustworthy.**
**People with brain injuries are demanding.**
**People with brain injuries are confused.**

Nine questions referred to broadly negative attributes whilst 11 were positive. High scores on questions 1, 3, 7, 8, 10, 12, 14, 17 and 18 would indicate positive perceptions. However, positive perceptions would be indicated by low scores on questions 2, 4, 5, 6, 9, 11, 13, 15, 16, 19 and 20.

<table>
<thead>
<tr>
<th>Attributes</th>
<th>MANOVA result</th>
<th>Partial eta-squared</th>
<th>Student mean and (standard deviation)</th>
<th>Public mean and (standard deviation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. People with brain injuries can be violent</td>
<td>(F(1, 316) = 77.18, P &lt; 0.001)</td>
<td>0.20</td>
<td>2.57 (0.80)</td>
<td>3.39 (0.86)</td>
</tr>
<tr>
<td>2. People with brain injuries can be useful members of society</td>
<td>(F(1, 316) = 505.87, P &lt; 0.001)</td>
<td>0.62</td>
<td>1.96 (0.75)</td>
<td>3.99 (0.86)</td>
</tr>
<tr>
<td>3. People with brain injuries can be unpredictable*</td>
<td>(F(1, 316) = 373.73, P &lt; 0.001)</td>
<td>0.54</td>
<td>2.17 (0.69)</td>
<td>3.79 (0.80)</td>
</tr>
<tr>
<td>4. People with brain injuries can be responsible</td>
<td>(F(1, 316) = 367.23, P &lt; 0.001)</td>
<td>0.54</td>
<td>2.13 (0.76)</td>
<td>3.82 (0.81)</td>
</tr>
<tr>
<td>5. People with brain injuries can be caring</td>
<td>(F(1, 316) = 1321.99, P &lt; 0.001)</td>
<td>0.81</td>
<td>1.61 (0.63)</td>
<td>4.23 (0.65)</td>
</tr>
<tr>
<td>6. People with brain injuries can be productive members of society</td>
<td>(F(1, 316) = 511.12, P &lt; 0.001)</td>
<td>0.62</td>
<td>1.92 (0.79)</td>
<td>3.99 (0.84)</td>
</tr>
<tr>
<td>7. People with brain injuries are a danger to themselves</td>
<td>(F(1, 316) = 1.51, P = \text{NS})</td>
<td>0.01</td>
<td>3.20 (0.78)</td>
<td>3.08 (0.82)</td>
</tr>
<tr>
<td>8. People with brain injuries can be aggressive*</td>
<td>(F(1, 316) = 161.68, P &lt; 0.001)</td>
<td>0.34</td>
<td>2.44 (0.69)</td>
<td>3.51 (0.80)</td>
</tr>
<tr>
<td>9. People with brain injuries can be trustworthy*</td>
<td>(F(1, 316) = 364.1, P &lt; 0.001)</td>
<td>0.54</td>
<td>2.05 (0.73)</td>
<td>3.75 (0.86)</td>
</tr>
<tr>
<td>10. People with brain injuries are less intellectually competent</td>
<td>(F(1, 316) = 22.87, P &lt; 0.001)</td>
<td>0.07</td>
<td>3.25 (0.95)</td>
<td>2.75 (0.93)</td>
</tr>
<tr>
<td>11. People with brain injuries are brave</td>
<td>(F(1, 316) = 192.87, P &lt; 0.001)</td>
<td>0.38</td>
<td>2.45 (0.82)</td>
<td>3.74 (0.83)</td>
</tr>
<tr>
<td>12. People with brain injuries are demanding*</td>
<td>(F(1, 316) = 47.69, P &lt; 0.001)</td>
<td>0.13</td>
<td>2.77 (0.76)</td>
<td>3.40 (0.86)</td>
</tr>
<tr>
<td>13. People with brain injuries are ambitious*</td>
<td>(F(1, 316) = 68.61, P &lt; 0.001)</td>
<td>0.18</td>
<td>2.70 (0.70)</td>
<td>3.37 (0.76)</td>
</tr>
<tr>
<td>14. People with brain injuries are embarrassing</td>
<td>(F(1, 316) = 392.31, P &lt; 0.001)</td>
<td>0.55</td>
<td>4.03 (0.88)</td>
<td>2.05 (0.90)</td>
</tr>
<tr>
<td>15. People with brain injuries are proud*</td>
<td>(F(1, 316) = 20.58, P &lt; 0.001)</td>
<td>0.06</td>
<td>2.91 (0.70)</td>
<td>3.29 (0.81)</td>
</tr>
<tr>
<td>16. People with brain injuries are confident*</td>
<td>(F(1, 316) = 0.70, P = \text{NS})</td>
<td>0.00</td>
<td>3.05 (0.70)</td>
<td>3.12 (0.76)</td>
</tr>
<tr>
<td>17. People with brain injuries are confused*</td>
<td>(F(1, 316) = 13.54, P &lt; 0.001)</td>
<td>0.04</td>
<td>2.89 (0.74)</td>
<td>3.22 (0.87)</td>
</tr>
<tr>
<td>18. People with brain injuries are uncommunicative</td>
<td>(F(1, 316) = 69.25, P &lt; 0.001)</td>
<td>0.18</td>
<td>3.49 (0.86)</td>
<td>2.67 (0.89)</td>
</tr>
<tr>
<td>19. People with brain injuries are kind</td>
<td>(F(1, 316) = 234.81, P &lt; 0.001)</td>
<td>0.43</td>
<td>2.48 (0.70)</td>
<td>3.73 (0.76)</td>
</tr>
<tr>
<td>20. People with brain injuries are optimistic*</td>
<td>(F(1, 316) = 50.35, P &lt; 0.001)</td>
<td>0.14</td>
<td>2.73 (0.70)</td>
<td>3.34 (0.84)</td>
</tr>
</tbody>
</table>

* Assumptions of equality of error variance violated.
A short form of the Crowne-Marlowe social desirability scale (Strahan & Gerbasi, 1979) was included to detect participants who attempted to project a socially favourable image. The 10-item short form questionnaire correlates highly (alpha > 0.80) with the original Crowne-Marlowe scale (1960). In addition, the psychometric properties of the scale have been supported by cross-validation.

2.4. Procedure

In order to undertake the research, ethical clearance was first sought and then granted through the Queen’s University of Belfast, School of Psychology’s Research Ethics Committee. This committee operates in accordance with the British Psychological Society’s code of conduct for research. Following approval, the development of a scale to assess public perceptions of survivors of brain injury was undertaken. The authors drew inspiration for this scale from the Positive Affect Negative Affect Scale (PANAS) (Watson, Clark, & Tellegen, 1988), which uses a series of positive and negatively skewed words to which the participant is asked to respond. The simple statement “People with brain injuries are” was employed as a prompt, with the target attribute added. In addition to the newly constructed instrument, a short form of the Marlowe-Crowne social desirability scale and a demographic questionnaire were added to the research pack. Demographic information on gender, age, post code and personal knowledge of an individual with brain injury were requested. Two undergraduate classes of psychology students were approached and asked to participate in the study. Assistance in gathering data from the general public was sought through a group of research students and comprised a convenience sample. All participants were informed that they were under no obligation to take part in the study, that they could withdraw at any point following commencement, and that all information provided would be considered strictly confidential. Instructions were standardised in an attempt to control for confounding variables and participants were all resident in Northern Ireland at the time of the study.

The multiple deprivation index may be used to determine the SES of participants if their post code is known. The Northern Ireland Neighbourhood Information Service (NINIS) provided by the Northern Ireland Statistics and Research Agency provides this information on a ward by ward basis. An electoral ward is a spatial unit or region used to divide the populace into manageable sectors for the purpose of electing government officials. Northern Ireland is divided into 582 wards. Each is assigned a rank depending on the level of deprivation experienced in that ward. The multiple deprivation index describes the ward by combining information from seven domains: income, employment, health, education, access (referring to the provision of services such as a post office, General Practitioner’s (GP) surgery, accident and emergency hospital, dentist, optician, pharmacist, library, museum and access to a social security office or a training and employment agency), social environment (refers to crime and social problems in the ward) and housing. The ward assigned a rank of 1 would have the most deprived status whilst 582 would be the least deprived. The total sample ranged from a score of 1 for the most deprived ward, and 579 for the least deprived. The mean score for the sample was 314.52. The range of deprivation amongst the students was between 7 and 579 with a mean of 321.27 (standard deviation = 176.40), whilst the public ranged from 1 to 569, with a mean of 307.93 (standard deviation = 153.39).

2.5. Data analysis

Multivariate analysis of variance was employed to test for differences between the independent variables and all the dependent variables. It does this by creating a summary dependent variable which is based on a linear combination of the original variables (Pallant, 2001). In addition, correlations were conducted to determine if participants were responding in a socially desirable manner.

3. Results

Two one-way groups multivariate analyses of variance (MANOVA) were carried out to explore differences between students and the public and between males and females. A 2 × 3 groups MANOVA to test for differences between students and the public on SES was also conducted. A total of 40 correlations were performed to determine if an association existed between socially desirable responding and the 20 attributes. Descriptive statistics will first be presented in graphical form, followed by inferential statistics.
Fig. 1. High scores on the attributes displayed above indicate more positive perceptions.

Fig. 1 shows mean scores for students and members of the public on the negative attributes. The public display more positive views on five out of the nine statements. The most notable mean differences are seen on attributes 3 and 14 which refer to survivors of brain injury being ‘unpredictable’ and ‘embarrassing’, respectively.

Fig. 2 presents mean scores for both groups on the positive attributes and shows that students hold more positive views on all 11 of these attributes. However, on attributes 15 and 16 the difference between the groups is relatively small.

3.1. MANOVA analyses

A one-way between groups multivariate analysis of variance was performed to explore differences between the views of the students and members of the public. Initial tests were conducted to ensure normality, equality of error variance, and equality of covariance. Box’s test of equality of covariance matrices produced a significant result. However, this test has been criticised as being too strict when employed on a large sample size (Pallant, 2001). Assumptions of equality of error variance were violated on 9 out of the 20 attributes. A more strict alpha value was applied to these. There was a statistically significant difference between the students and the public on the combined attributes: $F(20, 297) = 113.16, P < 0.001$; Wilks’ Lambda = 0.12; partial eta-squared = 0.88. When the results for the attributes were considered independently, applying a Bonferroni adjusted alpha level of 0.0025, only attributes 7 and 16 failed to reach statistical significance (see Table 1). In the case of attributes which violated the assumption of equality of error variance an alpha value of 0.00125 was applied. These were also shown to reach statistical significance.

A second one-way between groups multivariate analysis of variance was conducted to test for differences between males and females. No statistically significant differences were found.

A $2 \times 3$ groups MANOVA to test for the effects of low, moderate and high SES on student and public views failed to reach statistical significance.

Fig. 2. Low scores on the attributes displayed above indicate more positive perceptions.
3.2. Correlations

A series of correlations were undertaken to explore the relationship between the Marlowe-Crowne social desirability scale and the 20 attributes. Considering the range of statistically significant differences found between the participants it was decided to treat these groups separately. Only attribute 7 ($r = -0.157$, $n = 168$, $P < 0.05$) amongst the students and 3 ($r = -0.173$, $n = 153$, $P < 0.05$), 14 ($r = -0.201$, $n = 153$, $P < 0.05$), 16 ($r = 0.175$, $n = 153$, $P < 0.05$), and 19 ($r = 0.208$, $n = 153$, $P < 0.01$), among the public were found to reach significance (two-tailed). However, these correlations would be classed as having weak associations.

4. Discussion

The results showed clear differences between the students and public on all but two of the attributes tested. Members of the public displayed less positive views on attributes relating to intellectual competency, embarrassment, communication, use to society, responsibility, ability to care, ability to be productive, trustworthiness, bravery, ambition, pride, kindness and optimism. However, on attributes referring to violence, unpredictability, aggression, confusion and tendency to be demanding, it was the students who were shown to hold less positive views. The negative views expressed may result in the possibility of prejudice and discrimination.

Significant correlations between the Marlowe-Crowne social desirability scale and 5 of the 20 attributes may indicate that in these cases participants were responding in a socially desirable manner. These attributes referred to survivors of brain injury being a danger to themselves, being unpredictable, embarrassing, confident and kind. It is difficult to explain why this may have occurred for these attributes and not the other 15. However, the large number of correlations conducted ($n = 40$) may have contributed to these significant findings and may have been the result of random chance.

The study failed to show significant results for the variables of gender and SES. These findings are in contrast with those of Linden et al. (2005) who demonstrated significant differences between males of low and high SES and between males and females. Guilmete and Paglia (2004) found no effect of gender on perceptions of TBI and the current study would support their results.

One of the study’s three original hypotheses were supported, i.e. differences would exist between student and public perceptions. The more central issue of how members of the public see survivors of brain injury was also investigated. The utility of a simple attribute questionnaire was demonstrated and showed that both groups held differing opinions concerning the characteristics they might expect from an individual with brain injury.

Approximately 27% of participants among the public and 28% of students knew someone who had sustained a brain injury. It is therefore unlikely that direct contact or knowing someone with a brain injury could account for the discrepancy in public and student perceptions. If knowing someone with an injury cannot account for these findings what other variables might have been involved? The mean difference in age of the two groups was 10.49 years which represents a significant gap. Research conducted to investigate the community’s tolerance of the mentally ill showed that age, education, occupation and experience with mentally ill individuals were the main demographic determinants of tolerance. Brockington et al. (1993) found that advanced age was consistently associated with intolerant attitudes; those participants who indicated fear of the mentally ill were mainly over the age of 65. Similarly, low scores (suggesting positive attitudes) on a benevolence factor were associated with youth, whereas high scores (negative attitudes) on the same factor were associated with mature (but not extreme) age.

Both Brockington et al. (1993) and Guilmete and Paglia (2004) demonstrated that education was an important factor in determining attitudes towards the mentally ill and misconceptions concerning TBI. In the present study the educational status of participants drawn from the general public was unknown. Clearly the psychology students had been educated at a university level and were shown to be more positive towards survivors of brain injury. However, whether this is the result of a university level education, a psychology education, or another unknown factor is unclear. It would prove interesting to replicate the current study with a wider spread of students across many disciplines in an attempt to further clarify this point. In addition, it would be advisable that future studies, utilising a sample drawn from the general public, should record their educational status.

Raising the public profile of survivors of brain injury could challenge the misconceptions and prejudice held by the general public. Educational campaigns which highlight the person behind the injury could prove helpful in the social reintegration of this group. A measure which could monitor changes in public perceptions before, during, and after such a campaign would prove extremely useful in determining its success. Further, a longitudinal exploration of public...
perceptions utilising such a measure could provide valuable information on tolerance and changing opinion regarding survivors of brain injury. Changes in tolerance and public perceptions will affect social acceptance and reintegration and represent an important area for future research.

Three issues of concern must be addressed in regard to methodological rigor. First, the measure used was constructed on an ad hoc basis and other than its face validity, no exploration of its psychometric properties was undertaken. This was due to time constraints and future work will seek to refine and further develop this technique. Second, 8 out of the 20 attributes used the phrase “can be” in describing survivors of brain injury. It is possible that such phrasing influenced participants towards greater acceptance of these statements. Alternative phrasing may produce quite different results and should be explored in future work. Third, it is usually ill advised to conduct large numbers of statistical procedures due to the increased risk that some will prove significant by chance alone. However, very few (5 out of 40) of the correlations conducted were significant and the authors feel this adds to the robustness of the findings, i.e. participants were not responding in a socially desirable fashion.

Given the above concerns these findings must be treated with a degree of caution. The preliminary nature of the questionnaire, its lack of established psychometric properties, and the phrasing of certain questions suggest an alternate explanation. It is possible that the differences observed between the general public and the psychology students were due to the public’s response to the “can be” questions. The public may have merely been responding to the possibility that, at times, everyone regardless of whether they had received a brain injury could be violent, caring, unpredictable, etc. In this regard the public may simply have made more realistic judgements than the students.

It must be noted that the more positive perceptions shown by students does not necessarily imply negative perceptions in the public. However, the potential that the public may perceive survivors of brain injury as less trustworthy, caring, kind, etc. could mean they adopt a more cautious approach to social interaction. If survivors of brain injury are to be fully rehabilitated they must be accepted by their communities. The present study suggests that members of the public could hold less favourable opinions concerning this group, implying that survivors of brain injury may face a variety of challenges in returning to community life. When people with brain injury become aware of how some members of society may perceive them it is possible they could withdraw from many social situations. They may fear disclosure of their injury because of the way people are likely to view them. This could lead to certain members of this vulnerable group feeling isolated and perhaps impede their seeking support. Additional research will therefore be required to explore how public opinion may impact on the individual’s psychological adjustment to brain injury and to more fully understand how services can support clients with these issues.

Participants in the present study were responding not to an individual with a brain injury but rather a representation of how they thought such a person would behave. It cannot be concluded that the participants would display negative behaviours towards survivors of brain injury. However, Morris et al. (2005), in a qualitative study exploring outcome following head injury, demonstrated that survivors of brain injury did experience a variety of negative reactions including discrimination, lack of understanding and social exclusion. The misconceptions and lack of knowledge regarding brain injury (Guilmete & Paglia, 2004; Willer et al., 1991) may have influenced how participants in the current study viewed survivors of brain injury. The importance of education, and highlighting that the individual comes first and the injury second, is crucial if rehabilitation and community integration are to prove realistic goals.

This research has added to the knowledge base regarding how society looks upon survivors of brain injury. Members of the public were shown to perceive survivors of brain injury in a more negative light than psychology students.

References


