

Survivor Story-Telling in Road Trauma Education and Support Programs: Reviewing the Evidence

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Abstract

Survivor story-telling is used in many road trauma education and support programs, yet the impact on both the narrator and their audiences is not well understood. A scoping review of the published literature since 2010 was undertaken to determine the range of survivor story-telling approaches currently used, identified risks and benefits, and any mitigation strategies to support the well-being of the survivor story-teller and program participants. Ten articles were identified evaluating or describing diverse story-telling approaches within road trauma programs. Six of the seven empirical studies found positive story-telling listener benefits. However, no measurement was used in relation to the emotional impact on survivor story-tellers and those who participate in such programs. This paper presents implications given the major gap that exists in the evidence-base relating to the practice of involving and supporting road trauma survivors presenting direct testimony in prevention and post-vention programs.

Introduction

Many organisations, such as the Road Trauma Support Services Victoria (Jeavons, 1997), engage survivors as speakers (volunteer or paid) in their support and education programs. This practice is evident internationally in various health, mental health and trauma recovery or safety programs. This participation is seen as contributing to survivors' own recovery and healing processes, motivated by a wish to prevent a recurrence of traumatic events or influence the community in other ways in relation to their trauma experience (Herman, 1992). It is also seen as an important way of survivors being able to form a new post-trauma narrative, identity and role (Chelf et al., 2000; Kreuter et al., 2008).

Such participation has also been seen as influential on audiences. First person survivor accounts, often referred to as 'victim testimonials' or 'personal story-telling', have been seen to be a way of promoting knowledge acquisition and/or behaviour change in others (Hinyard & Kreuter, 2006; Perrier & Ginis, 2016). This intervention has been shown to elicit emotional and/or empathic engagement, and therefore contribute to cognitive and behavioural change in different ways from that of engagement with factual material only (Kreuter et al., 2010; McQueen et al., 2011; Murphy et al., 2013). In the road trauma area, these interventions have been particularly focused on attitude and behaviour change in young people, and also with road traffic offenders. The story-telling dimensions of such interventions align with aspects of both restorative justice and health promotion approaches.

Survivor stories are a central component of restorative justice programs (Sherman et al., 2005; Rossner, 2008, 2011, 2013). In these interventions, the mediated encounter between an offender and their victim provides the opportunity for a non-threatening, familiarisation and empathy-building process to occur (Shapland et al., 2006). The mediation of this encounter through a third party, and through careful preparation and debriefing support provides a useful model for story-telling in these legal contexts. The evidence from restorative justice programs shows benefits for both victims who tell their stories, revisiting their trauma experiences, and offenders (see, for example, Sherman et al., 2005).

Survivor stories are incorporated in other programmatic interventions unrelated to offending behaviours, particularly in health promotion and prevention programs. For example, in the aftermath of health crises, story-telling interventions now include the use of internet-based interventions (Kokanovic & Hill, 2012), media interviews, and direct face-to-face testimonies. There is an emerging evidence base for the efficacy for some of these interventions in promoting health behaviours (e.g. McQueen et al., 2011; Tuong et al., 2014).

Alongside this emerging evidence for the efficacy of survivor story-telling, questions remain as to whether there are risks for both the survivor and their audiences in engaging in this practice. For example, some studies have found that intrusive visual images have been evoked in audiences from imagining described trauma scenes (Krans, Naring et al., 2010). The use of shock or ‘fear appeal’ tactics in support and education programs has also been identified as generally ineffective, with defensive mechanisms likely to be elicited in those at risk of unsafe road safety behaviour (Harris et al., 2013). For those survivors who are sharing their stories, there are questions about the impact of such engagement on them personally (Park-Fuller, 2000) and the optimal approaches and support models for such involvement.

The Road Trauma Support Services Victoria model of volunteer story-telling is evident in two road trauma education and support programs. The Road Trauma Awareness Seminar (RTAS) is ‘a short, non-treatment based offender program which aims to bring about attitude and behavioral change, and reduce recidivism and hence road trauma’ (Clark & Edquist, 2013). The Drive to Learn program (Oxley et al., 2014) is another offender program, aimed at diverting or reducing ‘the progress of youth from (further) entry into the youth justice system’ (Oxley et al., 2014) through,

Discouraging high risk driving behaviour by educating teenagers who have been apprehended for illegal driving behaviours about the risks associated with high risk driving behaviours; Encouraging safe driving behaviour.

The program design, which draws on restorative justice principles, is based on providing an encounter between representative offenders and road trauma survivors to foster the necessary emotional and interactional dynamics for change (Gavrielides, 2008; Rossner, 2011), using survivor story-telling as part of a group intervention. In these programs, strategies to optimise and support survivor story-telling include the practice that volunteers are engaged no sooner than two years post incident to enable the acute and early phases of impact to have resolved optimally. There is an intensive volunteer induction program, which includes role plays to familiarise potential speakers with the impact on themselves of telling their story publically (including in non-judgmental ways) and in the absence of graphic and shocking imagery. Flexible rostering enables volunteers to choose their pace of involvement in the program, and there are face-to-face monthly and ad hoc debriefing sessions with the educator. While survivor story-telling has been in operation at Road Trauma Support Services Victoria since 2004, this review was initiated to seek an evidence base for best practice in this area.

With these questions in mind, and in the context of a vast literature relating to trauma more generally, we sought to identify the evidence for the use of survivor engagement (volunteer or paid) in road trauma story-telling activities, seeking to understand the impact on both the survivor story-tellers and their audiences.

Method

Scoping reviews provide the opportunity to interrogate the published literature in relation to a specific topic area. Noted by Arksey and O’Malley (2005, p. 21), a scoping study is typically undertaken to ‘examine the extent, range, and nature of research activity’ in relation to a particular area, rather than examine the quality of that research activity. This is in order to ‘determine the

value of undertaking a full systematic review’, ‘summarize and disseminate research findings’, and ‘identify research gaps in the existing literature’ (Arksey & O’Malley, 2005, p. 21).

Arksey and O’Malley’s (2005) method is the most widely-used and endorsed scoping review approach (Cacchione, 2016; Levac et al., 2010). This method involves five stages: (1) identifying the research question; (2) identifying relevant studies; (3) study selection; (4) charting the data; (5) collating, summarizing and reporting results. The optional sixth stage of consultation was used also.

For this study, the key research question was: *What evidence exists in relation to the experiences of road trauma survivor storytelling and/or listening?* Subsidiary questions were: (1) What is the range of approaches to the use of road trauma survivor storytelling and listening?; (2) What are the identified benefits, risks and ethical issues associated with these approaches?; and (3) What are any identified mitigation strategies, including screening, selecting, training and supporting volunteers?

Searches were conducted using the Web of Science, Medline, PsycInfo, ProQuest, and the Cumulative Index to Nursing and Allied Health Literature (CINAHL) databases for literature published between January 2010 and June 2016 to ensure the recency of research relevant to current programs. The search terms used in multiple combinations were: road trauma, motor vehicle accident, motor vehicle collision, car, road safety, traffic informers, traffic accident, pedestrian, narrative, impact, listen, story, injury prevention, insight development and education, victim, volunteer and testimony. As the initial database searches did not yield many relevant articles, the search was expanded to include hand searching of referenced articles and Google Scholar, consistent with Arksey and O’Malley’s (2005) recommendations.

Based on the search terms, 564 articles were initially retrieved, with 31 articles identified as potentially relevant to the study (with or without the specified road trauma related terminology). Study selection focused on articles that were peer-reviewed, specifically road trauma related and referred to the use of direct testimony or survivor story-telling in some form of intervention. Two researchers (LH and MA) independently examined the article titles and abstracts for possible inclusion. Through this review, a further 21 articles were excluded as they did not pertain to road trauma specifically, but to survivors’ health narratives, social trauma or health behaviours.

Results

Ten articles were identified that addressed the involvement of survivor story-telling in road trauma programs. Two articles were from each of the United States, The Netherlands, Australia and the United Kingdom, with one each from Belgium and Israel.

Seven of the ten articles reported findings from empirical studies, summarised in Table 1. Six of the studies were conducted with secondary school or university student samples, and one was with an adult sample. None of these samples included offenders, the target audiences of the Road Trauma Support Services Victoria programs. Different terms were used in these articles for the survivor story-teller (traffic informer or patient presenter) as well as the intervention (story-based communications, testimonials, victim or personal stories and personal narratives).

Table 1: Studies of the use of personal narratives in road trauma programs

Author(s) and year	Country	Aim/s	Method	Participants	Key findings in relation to the use of survivor storytelling
Cuenen, Brijs, Brijs, Van Vlierden, Daniels & Wets (2016)	Belgium	To investigate the effects of an education program for high school students using testimonials of traffic victims.	A quasi-experimental design where students were assigned to a baseline – follow-up group and a post-test – follow-up group. Both groups were questioned a first time (just before or after session attendance) on paper, and a second time (two months after session attendance) online.	1362 secondary school students	The program had small to medium positive effects on most socio-cognitive and behavioural variables, both immediately after attendance and two months following. Overall the program had more effect on males than on females. The authors recommend testimonials be delivered at a level of moderate emotional and arousal intensity.
Buckmaster, Brownlie, Olver, Fedele & McKenzie (2015)	Australia	To evaluate the effectiveness of an existing road trauma program and establish whether personal narratives prompted an increased change in attitudes regarding traffic safety.	Evaluation of existing road trauma program (quantitative and qualitative)	107 secondary school students (n=43 in control group, n= 64 in experimental group with supplementary education session offered)	There were some statistically significant findings, namely for group and gender, but these results did not change across time. Males displayed significantly increased scores towards drinking and driving than females, showing a more ‘non-ideal’ attitude to road safety. The qualitative analysis revealed evidence for the positive impact of the additional education session.
Feenstra, Ruiter & Kok (2014)	Netherlands	To evaluate the widely adopted traffic informer program. Students watched graphic videos of traffic accidents and listened to a first-person narrative provided by a traffic accident victim.	A quasi-experimental study, where pre-drivers were allocated to an experimental or control group and completed self-report questionnaires one week before program implementation and one month afterwards.	1593 school students (M age =15 years)	Significant positive and negative time intervention interaction impacts were reported on attitude toward traffic violations, relative attitude toward traffic safety, and risk comparison, but not on intention and behavior. The findings offered little support for the effectiveness of the traffic informer program. Negative effects of the program were found to be minor.
Twisk, Vlakveld, Commandeur, Shope & Kok (2014)	Netherlands	To assess and compare the effects of five short road safety education (RSE) programmes for young adolescents	Questionnaires were completed before and after participation in the RSE programs – by young people who had participated in a road safety education program, the intervention group, and by an equivalent reference group of young people who had not.	1874 students 12-17 years across 5 programmes	Three out of five RSE programs led to significantly improved self-reported safety behaviour, but the proportions of participants that changed their behaviour compared to the reference group were small, ranging from 3% to 20%. This study found that the fear-appeal education programs were not more effective than the cognitive programs.
Brann, Mullins, Miller, Eoff, Graham &	USA	To assess rural All Terrain Vehicle riders’ preferences for and assessment of safety education	Qualitative – focus groups	88 adults and youth riders	Realism, clarity and personal stories were identified as important for participants when considering All

Author(s) and year	Country	Aim/s	Method	Participants	Key findings in relation to the use of survivor story-telling
Aitken (2012)		messages.			Terrain Vehicle safety messages.
Ricketts, Shanteau, McSpadden & Fernandez-Medina (2010)	USA	To examine the impact of injury stories on safety behaviour and to investigate the psychological impact of stories, particularly whether they are effective at changing safety and health behaviour	Questionnaires were completed after assembling a swing under three information conditions. The questionnaire examined safety behaviour, narrative transportation and triggered memories, and participants were also behaviourally observed and scored.	142 university students	Safety messages were more effective when they contained brief anecdotes about accident victims, resulting in a 19% improvement in safety behaviour.
Poulter & McKenna (2010)	UK	To evaluate the effectiveness of an educational intervention.	<p>Participants watched dramatic video reconstruction of a fatal road traffic crash interspersed with live testimonials from people with direct experience of a fatal crash.</p> <p>Pre and post intervention, and five month follow up with 13 questionnaire items based on the Theory of Planned Behaviour – specifically items relating to future intentions, perceived behavioural control, attitudes, and subjective norms.</p>	199 secondary school students	Findings from the study suggest that the effectiveness of RSE interventions had a small immediate effect and these effects were generally short term and small in size.

Three were theoretical, analytic or scoping articles, not reporting empirical research findings, as summarised in Table 2. Rather than exclude these articles on the basis that they are not empirical studies, they were included given their findings point to some key conceptual reasons as to why survivor stories are considered to be useful.

Table 2: Theoretical literature on road safety

Author(s)	Country	Method	Aim/s	Key findings
Guttman (2015)	Israel	Theoretical exploration	To draw on behaviour change theories and social marketing to develop a detailed categorisation of persuasive appeals used in road safety communication campaigns.	Five main approaches were identified with appeals within these categories identified. Of the approach that used the direct personal stories of victims and their families, the advantages were argued to be eliciting an emotional response based on ‘credible and authentic’ methods, motivating a response to prevent causing sorrow. The limitation is generating anger towards the offender rather than reflecting on a personal need to change safety practices.
Fylan & Stradling (2014)	UK	Theoretical exploration	To describe Behavioural Change Techniques (BCT) in a manner that can be employed when considering road safety interventions and to explore which techniques are found in road safety interventions targeted at young people in the UK.	Only a limited number of BCTs were in interventions aimed at young people. For road safety interventions to achieve significant changes in behaviour, theoretical models of behaviour change together with BCT that are aligned with target behaviour should be considered.
Elliott (2011)	Australia	Review of road safety campaigns	To explore the variety of disciplines to inform the development and assessment of effective mass media campaigns.	Suggestion of some exploratory pathways via disciplines (such as neuroscience, social psychology) to influence road safety.

These articles highlight that, in relation to road safety campaigns, the use of direct survivor stories is seen as an important way of appealing to the emotions needed to elicit attitudinal and ultimately behaviour change – particularly through recognising the importance of ‘sorrow’ prevention (Guttman, 2015). As noted in Table 2, however, limitations are noted in relation to changing road safety attitudes, as the focus can be more on the offender than reflexively on the program participants’ need for behaviour change.

Elliott’s article (2011, p. 14) highlights the recent developments in neuroscience, particularly regarding the primacy of emotion in the role in attention and perceptions of risk. He outlines that this understanding supports the need to maximize ‘the likelihood of viewers empathising with the situation and the characters’ to engage with the emotional experience of the communication. These are the dominant theoretical perspectives that underscore the next area of discussion, the types of story-telling approaches currently being used in road trauma or safety programs.

Story-telling approaches and their impacts on listeners

Diverse story-telling approaches within road trauma programs were identified in the seven empirical and one of the scoping studies. These included face-to-face or live survivor story-telling, personal narratives included in videos, and personal stories presented in written safety instructions. None of these articles identified whether the story-tellers were engaged in the programs on a volunteer or paid basis.

According to Fylan and Stradling's (2014) analysis of six different road safety intervention types, they found the intervention that involved road trauma survivors presenting in workshops addressed six of the recommended 26 behaviour change techniques outlined by Abraham and Michie (2008). This was more than any of the other presentation types (road safety professionals, forensic science activities, theatre productions, DVD presentations from survivors). In these workshops, a presentation is given whereby one or two survivors 'talk to the audience about their accident, the recovery process, and how their injuries have affected their lives' (Fylan & Stradling, 2014, p. 125). According to the analysis undertaken by Fylan and Stradling (2014), these survivor presentations support the 'giving information', 'planning', 'implementing', 'monitoring' and 'feeling good' domains of behaviour change (Abraham & Michie, 2008). Brann et al.'s (2012) qualitative study found that realism and clarity were important elements in personal stories to achieve these outcomes.

Three other studies had directly examined the efficacy of using direct, face-to-face or live testimony from road trauma survivors or their relatives as part of a programmatic intervention (Cuenen et al., 2016; Buckmaster et al., 2015; Feenstra et al., 2014). In these studies, the ways in which survivor story-telling was used was varied, as highlighted below.

Cuenen et al. (2016) investigated the effects of an education program for 1362 Belgian high school students using testimonials of (relatives of) traffic victims (known as traffic informers). Their program ran for two hours, with the first hour spent listening to a traffic victim's testimonial, and the second hour providing an opportunity for students to join in a group discussion and share their opinions. Five socio-cognitive and behavioural variables were taken from the Theory of Planned Behaviour (TPB; attitude, subjective norm, perceived behavioural control, behavioural intention and behaviour), and these were used to evaluate the effectiveness of the program via a questionnaire. The results indicated that the program had small to medium positive effects on most of these socio-cognitive and behavioural variables for males and females, both immediately after attendance and two months following. Furthermore, the program had an immediate positive impact on female participants' cognitive and emotional state, as indicated by the TPB variables.

In Buckmaster et al.'s (2015) study, a live personal account of trauma from a road accident survivor and rehabilitation staff member was evaluated in an existing road trauma program with 107 Australian secondary school students. An experimental group of 64 students listened to this personal account in an additional session, in which the patient shared their road trauma and rehabilitation experience in a video and semi-structured interview with the rehabilitation staff member. Qualitative data analysis revealed the impact of meeting a victim in 'real time' and emotional responses from students positively impacted upon their attitudes towards risk taking behaviour. The majority (58%) also reported 'feeling emotional, sad or sorry for the road trauma presenter'. However, when *The Attitudes Towards Road Safety (ATRS) Questionnaire* was administered, a statistically significant difference was found, with the experimental group having 'less ideal' attitudes towards the careless driving of others; that is, a higher score indicating poorer attitudes towards the rule violations (such as speeding), the careless driving of others, and drinking and driving. This was a counterintuitive finding that the authors remain unclear about.

Feenstra et al. (2014) evaluated the widely adopted Netherlands' traffic informer program, which aims to promote safe traffic behaviour in the pre-driver population (particularly focusing on bicycle use). Students watched graphic videos of traffic accidents and listened to a live first-person narrative provided by a traffic accident victim. However, the findings offered little support for the effectiveness of the traffic informer program and this was reflected both in the participants' self-reported behaviour and in their intentions to undertake less risky traffic behaviour. They found also that the 'attitudes towards violating traffic rules became slightly more positive' (Feenstra et al., 2014, p. 292) as a result of participating in the program.

Other documented approaches to using survivor storytelling were by video (DVD) or written messages. In terms of the empirical studies of DVD use, the findings were mixed. Poulter and McKenna (2010) also employed the TPB framework to assess the effectiveness of a pre-driver educational intervention used across the United Kingdom. One hundred and ninety-nine secondary school students watched dramatic video reconstruction of a fatal road traffic crash interspersed with live testimonials from people with direct experience of a fatal crash. Findings suggest that the effectiveness of road safety education (RSE) interventions had a small immediate short-term effect on some pre-driver beliefs. Again, there were some small, unintended consequences, with a reduced attitudes towards intending to conform to road rules after five months since the DVD exposure.

Ricketts et al. (2010) explored whether stories were effective at changing behaviour by examining the influence of injury narratives on actual safety behaviour in a study of 142 university students. It was found that written safety messages were more effective when they contained brief stories about people who were injured in the past (story-based messages resulted in a 19% percent improvement in safety behaviour, compared with non-narrative communications). The study also found that injury stories did not create unwarranted concern about risks, but did convince individuals to take reasonable precautions.

Twisk et al. (2014) similarly used video methods in their five short RSE programs. These programs were aimed at improving safe behaviours by raising risk awareness for young adolescents. Two of the five programs utilised ‘fear-appeal’ (more typically referred to as fear appraisal) intended to discourage young people from taking risks by exposing them to negative and often shocking videos and personal testimony from road victims about the effects of risk behaviours. Questionnaires were dispensed just before and one month after participation in the RSE programmes, both to the young people who had participated in a road safety education programme, the intervention group, and to an equivalent reference group of young people who had not. Similar to existing research, this study found that fear-appeal (or fear appraisal) education programs were not more effective than the cognitive programs.

Benefits, risks and ethical issues

The findings reported above noted the benefits (in some cases, none) for the audiences listening to survivor stories. The benefits for the survivor story-tellers were noted in terms of comments rather than measured outcomes, not seeming to have been an evaluated component of the studies. For example, both Cuenen et al. (2016) and Buckmaster et al. (2015) saw the opportunity for a survivor to tell their story as an opportunity to promote self-confidence and self-esteem. Buckmaster et al. (2015, p. 16) also highlighted the potential for such participation to include ‘providing a vocation and sense of value’ and Feenstra et al. (2014) noted that ‘the program is in some cases used therapeutically for the TI [traffic informer]’.

Similarly, the risks were not measured for participants in relation to listening to survivor stories. Nor were any explicit risk or ethical issues noted for the story-tellers themselves. The potential risks for survivor story-tellers were noted only briefly by Feenstra et al. (2014) as the emotional strain in retelling personal trauma accounts. This was potentially a greater risk in the Buckmaster et al. (2015) study, whereby the story-teller was selected on the basis of having experienced a traumatic brain injury, which often leads to increased emotional lability. This risk was not specifically noted by the authors, instead, they noted the impact of the particular injury type in terms of the coherence of the story itself: ‘The concern from allied health clinicians and family was that the patient presenter’s cognitive deficits including poor attention and memory could lead to repetitive presentation that lacked structure and guidance’ (Buckmaster et al., 2015, p. 16).

The identified mitigation strategies to screen, select, train and support story-tellers

Only three articles explicitly addressed any strategies for involving or working directly with the story-tellers or listeners (Buckmaster et al., 2015; Cuenen et al., 2016; Feenstra et al., 2014). These discussions were typically brief and did not address whether the person providing the direct testimony was doing so in a volunteer or paid capacity.

In terms of screening and selecting, Buckmaster et al.'s (2015) study provided the most detail in terms of inclusion criteria. They specified that the patient presenter needed to be: 'aged between 18-40 years; involved in a road trauma accident over 12 months ago and sustained a TBI [traumatic brain injury]; support from outpatient therapists; and their willingness (and sufficient communication skills to share their personal road trauma experience with students' (Buckmaster et al., 2015, p. 12).

Cuenen et al. (2016) noted that before individuals become traffic informers for the Belgian road safety program, they undertake formal training. In this training, they learn to present and standardise their personal testimonial in a calm manner emphasising the long-term physical, social, emotional, financial and professional impact of the event. This training is done to avoid presentation by traffic offenders of a sensational fear-driven narrative. In terms of practical implementation of victim testimonials, Cuenen et al. (2016) advocate for emotional caution when individuals are sharing their stories, predominantly by avoiding over-emphasising the physical consequences of the accident. They argue that this caution ensures moderate arousal levels for participants and thus creating an ideal opportunity for message processing.

Some mention was made of the various support processes for survivor story-tellers. For example, Feenstra et al. (2014, p. 290) outlined the restructuring of the story narration as follows: 'In those cases, the scenario of the personal story may be tailored, in that the sequence of events may be told either chronologically or reversed, in order to make it easier for the TI to retell the story'. Buckmaster et al. (2015) emphasised the importance of utilising a semi-structured interview between the patient presenter and the rehabilitation staff member, which provided an opportunity for structure, rehearsal, emotional support and support for the patient presenter. This seemed to be in terms of cognitive support rather than emotional support specifically. In the Cuenen et al. (2016) study, for some presenters a personal 'buddy' attends the session and supports the informer if necessary. No detail was provided as to who should undertake the buddy role.

Discussion

While survivor story-telling is a popular mechanism for education campaigns and programs across many areas of health and wellbeing, the current evidence for their impact and effectiveness in the published literature is sparse. This scoping review identified a very small evidence base for survivor storytelling and/or listening in the context of road trauma support and/or education programs in secondary and tertiary education contexts published since 2010, none of which related specifically to offender programs.

Six of these seven empirical studies identified showed small to medium positive attitudinal outcomes from this practice, and one found little support for such outcomes (Feenstra et al., 2014). Critically, none of these seven empirical studies sought to measure any negative emotional impact on either the survivor story-tellers or the program participants. It is noteworthy also that two studies showed some minor negative outcomes on some specific attitudes towards road safety behaviours, including, as noted earlier, poorer attitudes towards rule violations (Feenstra et al., 2014; Buckmaster et al., 2015) and towards the careless driving of others, and drinking and driving (Buckmaster et al., 2015). Another study found that fear-appeal components of education programs for school aged children to have no more effect than cognitive ones (Twisk et al., 2014).

Of this limited available evidence explored, survivor story-telling does appear to have the potential to influence behaviours or attitudes to a small extent within certain circumstances. The literature points to some important issues when considering utilising survivor story-telling as part of an education campaign or program. Firstly, narratives based on fear were not found to be more effective than cognitive programs (Twisk et al., 2014). Based on this evidence, the recommended level of emotional and arousal intensity to elicit during these programs is a moderate level (Cuenen et al., 2016). Secondly, the differing impact of programs on gender appeared to be a key consideration (Buckmaster et al., 2015; Cuenen et al., 2016), suggestive of more gender-specificity within secondary school student programs.

Further evidence is needed to provide insight into the optimally sized group for impactful presentations, and the time frames of impact and change. One study noted that it was hard to distinguish the impact of the survivor story-teller component of the program, given the evaluation focused on both the presentation and the group discussion afterwards (Cuenen et al., 2016).

This recent literature provides the beginnings of documenting important survivor story-teller strategies that continue to be used not only in road trauma education and community programs, but in a wide range of health and restorative justice programs. However, it is clear that this evidence base is in its infancy, and is not yet established in relation to program participants beyond primarily the current school or university student samples.

The theoretical papers were retained in this review to provide the current thinking in relation to best practice. They demonstrate the nature of the field; that is, that there continues to be a strong reliance on theoretically-driven rather than evidence-based interventions. However, as such, they do provide frameworks to test in future studies of survivor story-telling.

Future research

It is clear from this review, and authors' recommendations (Cuenen et al., 2016), that there is a need for further research in this area of practice. The perspectives and experiences of road traffic survivors sharing their stories is lacking from the literature, and the benefits for 'patient presenters' has been identified as an area for future research (Buckmaster et al., 2015). Each of these areas is ripe for longitudinal study of impact and effectiveness, designed in ways that distinguish intervention types more precisely. In addition, these longitudinal studies would benefit from the use of more standardised outcome measures to enable comparison, recognising that this is an important but challenging consideration.

Broadening the scope of research focus to other populations beyond schools and universities is recommended also, so that best practice interventions can be evidenced, for example, for the offender populations engaged in programs at Road Trauma Support Services Victoria, outlined in the introduction.

Conclusions

This scoping review has examined the evidence for survivor story-telling engagement in road trauma education and support programs. Since 2010, little evidence has been established for its use, although six of the seven studies that were reviewed support its use for positive listener benefits. No measurement, neither positive nor negative, was used in relation to the emotional impact on survivor story-tellers and those who participate in such programs. The lack of evidence in relation to the use of survivor story-telling in road trauma support and education programs suggests there is a major gap in the current knowledge base, and points to a need for research in this area.

References

- Abraham, C. & Michie, S. (2008). A taxonomy of behavior change techniques used in interventions. *Health Psychology, 27*, 379-387.
- Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology, 8*(1), 19-32.
- Brann, M., Mullins, S. H., Miller, B. K., Eoff, S., Graham, J., & Aitken, M. E. (2012). Making the message meaningful: a qualitative assessment of media promoting all-terrain vehicle safety. *Injury Prevention, 18*(4), 234-239.
- Buckmaster, J., Brownlie, C., Olver, J., Fedele, B., & McKenzie, D. (2015). Road trauma education: the impact of a patient presenter on the road safety attitudes of adolescents. *Journal of the Australasian College of Road Safety, 26*(2), 11-18.
- Cacchione, P. (2016). The evolving methodology of scoping reviews. *Clinical Nursing Research, 25*(2), 115-119.
- Chelf, J., Deshler, A., Hillman, S. & Durazo-Arvizu, R. (2000). Storytelling: A strategy for living and coping with cancer. *Cancer Nursing, 23*(1), 1-5.
- Clark, B. & Edquist, J. (2013). *Road Trauma Awareness Seminar Literature Review*. Clayton: Monash University Accident Research Centre.
- Cuenen, A., Brijs, K., Brijs, T., Van Vlierden, K., Daniels, S., & Wets, G. (2016). Effect evaluation of a road safety education program based on victim testimonials in high schools in Belgium. *Accident Analysis & Prevention, 94*, 18-27.
- Elliott, B. (2011). Beyond reviews of road safety mass media campaigns: Looking elsewhere for new insights. *Journal of the Australasian College of Road Safety, 22*(4), 11-18.
- Feenstra, H., Ruiter, R., & Kok, G. (2014). Evaluating traffic informers: Testing the behavioral and social-cognitive effects of an adolescent bicycle safety education program. *Accident Analysis & Prevention, 73*, 288-295.
- Fylan, F., & Stradling, S. (2014). Behavioural Change Techniques used in road safety interventions for young people. *European Review of Applied Psychology, 64*(3), 123-129.
- Gavrielides, T. (2008). Restorative justice – the perplexing concept: Conceptual fault-lines and power battles within the restorative justice movement. *Criminology and Criminal Justice, 8*(2), 165-183, doi:10.1177/1748895808088993.
- Guttman, N. (2015). Persuasive appeals in road safety communication campaigns: theoretical frameworks and practical implications from the analysis of a decade of road safety campaign materials. *Accident Analysis & Prevention, 84*, 153-164.
- Harris, A., Waller, E., & Wishart, S. (2013). Good practice road safety education and community road safety. *2013 Australasian College of Road Safety Conference*, Adelaide.
- Herman, J. (1992). *Trauma and recovery*. New York: Basic Books.

- Hinyard, L., & Kreuter, M. (2006). Using narrative communication as a tool for health behavior change: a conceptual, theoretical, and empirical overview. *Health Education & Behavior, 34*(5), 777-792.
- Jeavons, S. (1997). Voluntary organisations and their role in providing support in the aftermath of accidents In M. Mitchell (Ed.), *The aftermath of road accidents: Psychological, social and legal consequences of an everyday trauma*. London: Routledge.
- Kokanovic, R., & Hill, N. (2012). *How information about other people's personal experiences on the internet can help with healthcare decision-making and recovery: A literature review*. Retrieved from https://www.tac.vic.gov.au/__data/assets/pdf_file/0020/125417/Personal-Experiences-Online-Evidence-Review.pdf
- Krans, J., Näring, G., Holmes, E., & Becker, E. (2010). "I see what you're saying": Intrusive images from listening to a traumatic verbal report. *Journal of Anxiety Disorders, 24*(1), 134-140.
- Kreuter, M., Buskirk, T., Holmes, K., Clark, E., Robinson, L., Si, X., Rath, S., Erwin, D., Philpneri, A., Cohen, E. & Mathews, K. (2008). What makes cancer survivor stories work? An empirical study among African American women. *Journal of Cancer Survivorship, 2*(1), 33-44.
- Kreuter, M., Holmes, K., Alcaraz, K., Kalesan, B., Rath, S., Richert, M., McQueen, A., Caito, N., Robinson, L., & Clark, E. (2010). Comparing narrative and informational videos to increase mammography in low-income African American women. *Patient Education and Counseling, 81*, S6-S14.
- Levac, D., Colquhoun, H., & O'Brien, K. (2010). Scoping studies: Advancing the methodology. *Implementation Science, 5*, 69.
- McQueen, A., Kreuter, M., Kalesan, B., & Alcaraz, K. (2011). Understanding narrative effects: the impact of breast cancer survivor stories on message processing, attitudes, and beliefs among African American women. *Health Psychology, 30*(6), 674.
- Murphy, S., Frank, L., Chatterjee, J., & Baezconde-Garbanati, L. (2013). Narrative versus non-narrative: The role of identification, transportation, and emotion in reducing health disparities. *Journal of Communication, 63*(1), 116-137.
- Oxley, J., O'Hern, S. & Clark, B. (2014). *Understanding 'best-practice' in young driver offender programs and Comparison of the RTSSV's 'Drive to Learn' Program with 'best-practice'*. Clayton: Monash University Accident Research Centre.
- Park-Fuller, L. (2000). Performing absence: The staged personal narrative as testimony. *Text and Performance Quarterly, 20*(1), 20-4.
- Perrier, M., & Ginis, K. (2016). Changing health-promoting behaviours through narrative interventions: A systematic review. *Journal of Health Psychology, 1359105316656243*.
- Poulter, D. & McKenna, F. (2010). Evaluating the effectiveness of a road safety education intervention for pre-drivers: An application of the theory of planned behaviour. *British Journal of Educational Psychology, 80*(2), 163-181.

- Ricketts, M., Shanteau, J., McSpadden, B., & Fernandez-Medina, K. (2010). Using stories to battle unintentional injuries: Narratives in safety and health communication. *Social Science & Medicine*, 70(9), 1441-1449.
- Rossner, M. (2008). Healing victims and offenders and reducing crime: A critical assessment of restorative justice practice and theory. *Sociology Compass*, 2(6), 1734-1749. doi:10.1111/j.1751-9020.2008.00170.x
- Rossner, M. (2011). Emotions and interaction ritual: A micro analysis of restorative justice. *British Journal of Criminology*, 51, 95-119. doi:10.1093/bjc/azq075
- Rossner, M. (2013). *Just emotions: Rituals of restorative justice*. Oxford: Oxford University Press.
- Shapland, J., Atkinson, A., Atkinson, H., Colledge, E., Dignan, J., Howes, M., Johnstone, J., Robinson, G., & Sorsby, A. (2006). Situating restorative justice within criminal justice. *Theoretical Criminology*, 10(4), 505-532, doi:10.1177/1362480606068876
- Sherman, L., Strang, H., Angel, C., Woods, D., Barnes, G., Bennett, S., & Inkpen, N. (2005). Effects of face-to-face restorative justice on victims of crime in four randomized, controlled trials. *Journal of Experimental Criminology*, 1, 367-395.
- Tuong, W., Larsen, E. R., & Armstrong, A. W. (2014). Videos to influence: a systematic review of effectiveness of video-based education in modifying health behaviors. *Journal of Behavioral Medicine*, 37(2), 218-233.
- Twisk, D., Vlakveld, W., Commandeur, J., Shope, J., & Kok, G. (2014). Five road safety education programmes for young adolescent pedestrians and cyclists: A multi-programme evaluation in a field setting. *Accident Analysis & Prevention*, 66, 55-61.