

## Evaluation of the Dawson College Shooting Psychological Intervention: Moving Toward a Multimodal Extensive Plan

### Monique Séguin,

Department of Psychology, Université du Québec en Outaouais, Gatineau, Québec, Canada, and McGill Group on Suicide Studies, McGill University, Montréal, Québec, Canada

### Nadia Chawky,

Department of Psychology, Université du Québec en Outaouais, Gatineau, Québec, Canada, and McGill Group on Suicide Studies, McGill University, Montréal, Québec, Canada

### Alain Lesage,

Department of Psychiatry, Université de Montréal and Centre de Recherche Fernand-Séguin de l'Hôpital Louis-H. Lafontaine, Montréal, Québec, Canada

### Richard Boyer,

Department of Psychiatry, Université de Montréal and Centre de Recherche Fernand-Séguin de l'Hôpital Louis-H. Lafontaine, Montréal, Québec, Canada

### Stéphane Guay,

Centre de Recherche Fernand-Séguin de l'Hôpital Louis-H. Lafontaine, and École de Criminologie, Université de Montréal, Montréal, Québec, Canada

### Pierre Bleau,

Department of Psychiatry, McGill University, Montréal, Québec, Canada

### Paule Miquelon,

Department of Psychology, Université du Québec à Trois-Rivières, Montréal, Québec, Canada

### Nadia Szkrumelak,

Department of Psychiatry, McGill University Health Centre, McGill University

### Warren Steiner, and

Department of Psychiatry, McGill University Health Centre, McGill University

### Denise Roy

Centre de Recherche Fernand-Séguin de l'Hôpital Louis-H. Lafontaine, Montréal, Québec, Canada

## Abstract

In 2006, following the shooting at Dawson College, the authorities implemented an intervention plan. This provided an opportunity to analyze the responses to services offered, and afforded a learning opportunity, which led to the proposal of an extensive multimodal short- and long-term

psychological plan for future needs. Both quantitative and qualitative data were gathered 18 months after the event, involving the participation of 948 students and staff. Mental health problems and the perception of services offered after the shooting were investigated, using standardized measures. Second, focus groups and individual interviews were conducted among a subgroup of participants (support team members; teachers and employees; students and parents) and permitted to gather data on services received and services required. Individual report of events, the extent of psychological impact and services offered and received were analyzed in terms of the following dimensions: intervention philosophy, training, ongoing offer of services and finally, detection and outreach. A significant incidence of disorders and a high rate of exacerbation of preexisting mental disorders were observed within the 18 months following the shooting. Postimmediate and short-term intervention appeared adequate, but the long-term collective vision toward community support and availability of mental health services were lacking. Lessons learned from this evaluation and other school shootings suggest that preparedness and long-term community responses are often overlooked. A multimodal extensive plan is proposed based on a theoretical model from which interventions strategies could be drawn.

### Keywords

posttraumatic intervention; school shooting; trauma; PTSD; mental health

---

In the last decade, the psychological intervention plans following disasters, including school emergency plans for a critical incident, have been developed at local, national, and international levels to offer support to survivors. The number of psychological first-aid programs is on the rise and targets specific disasters: disaster-related trauma; complex trauma; exposure to violence; traumatic loss; nonspecific mass trauma; organizational crisis management, and so forth (Jaycox et al., 2006; Hutchins & Wang, 2008). These include the International Crisis Response Network (ICRN) developed by the International School Psychology Association (Jimerson, Brock, & Pletcher, 2005), the National Organization for Victim Assistance (NOVA), the Community Crisis Response Team Protocol (Young, 2002), the Intervention, known as BASIC ID and BASIC Ph (Lahad, 1997), as well as the Psychological First Aid (PFA) Field Operations Guide developed by the National Child Traumatic Stress Network of the National Center for PTSD (Vernberg et al., 2008). In Quebec, the 1989 shooting of 22 young women at the École Polytechnique de Montréal prompted the development of a psychosocial approach to public security (Martel & Brunet, 2006).

Despite the fact that each program has a different and specific emphasis, they share a common foundation: (1) they are based on theories of stress, coping, adaptation, and resilience after exposure to a traumatic event; (2) the programs are applicable and can be implemented in almost any environment (school, community, or other); (3) the programs are adapted to different types of clientele and the different developmental stages of life, even though there are specific indications for children, teenagers, and adults; and (4) the programs are sensitive to different cultural contexts, allowing for flexible and adapted interventions (Pynoos et al., 2008).

Another shared resemblance of the posttrauma and postcritical incident plans is that they are based on a medical model for emergency intervention. As such, psychological interventions are planned for the identification and emergency interventions of acute symptomatology, which, more often, requires quick short-term interventions. Most of the emergency psychological plans focus on the identification and detection of difficulties in the realm of stress, acute stress, and posttraumatic stress disorders, and offer long lists of intervention activities to implement at different times in the first weeks or months of the critical incident. Only a few programs systematically include detection and active identification of individuals who may have developed other mental health disorders, such as affective disorders, substance abuse disorders, and so forth.

Some more recent models are now characterized by key principles instead of prescribed actions. From this perspective, Hobfoll et al. (2007) suggested that the state of knowledge points to basic principles for interventions following a violent and traumatic event, which they called *evidence-informed principles*. Five key principles should be at the center of crisis planning: promoting a sense of safety; calming; promoting a sense of self and community efficacy; connectedness; and hope. On a public-health level, a sense of safety is established by bringing people to a safe place and making it clear that the environment is safe, and, by extension, safe from rumors and other interpersonal factors that may increase the perception of a threat. Promotion of calming in the initial stages is important. Some level of stress and anxiety is normal and is a healthy response in the initial stage; most individuals will return to a more manageable level of emotions within days or weeks. In some cases, some individuals will continue to have heightened levels of anxiety, which will need to be addressed. Treatments targeted to calming the extreme emotions associated with trauma are suggested at this phase, such as relaxation, stress inoculation training, problem-focused coping, and so forth (Hobfoll, 2007). Promoting a sense of self-efficacy in the belief of a positive outcome through self-regulation of thoughts, emotions and behaviors (Carver & Scheier, 1998), and collective efficacy, creates a sense of belonging and connectedness. From this perspective, Hawdon and Ryan (2011) found a heightened sense of solidarity after the Virginia Tech shooting and argued that emotionally intense collective events focused on tragedy promote solidarity and create communities. If elevated social support facilitates well-being, it is important to keep in mind that change will occur in the social support system, which might wear out over time, leaving some individuals especially vulnerable (Kaniasty & Norris, 1993). Lastly, instilling hope is critical because mass trauma is accompanied by a “shattered world vision” (Janoff-Bulman, 1992).

Despite the relatively wide distribution of posttrauma programs, they were not validated empirically. This is understandable, since the methodological challenges are enormous, and it is unlikely that clinical trials could eventually be conducted in situations of mass trauma. Still there is no evidence base for a specific “best practice” global program, or for each of the psychological or psychoeducational interventions suggested for these programs. Recent findings concerning the use of psychological debriefing have left the field of trauma intervention with no specific framework for postimmediate disaster psychological intervention (Hobfoll et al., 2007).

This void prompted suggestions by an international expert panel, which has made recommendations on screening, outreach and intervention for mental health, and substance abuse needs following disasters and mass violence (Gibson et al., 2006). Although there is a consensus on the short-term model and intervention needed during the first phases of intervention, there has been much less discussion about long-term interventions, and about the presence or emergence of psychological difficulties other than PTSD after a critical incident.

## Lessons Learned From Recent School Shootings

Newly published systematic data collection and analysis after the school shootings at Virginia Tech offers other perspectives on the recently implemented intervention plan. Wang and Hutchins (2010) conducted an analysis of the crisis management implemented at Virginia Tech using six phases of analysis: 1. signal detection that involves recognizing and responding to the existence of early crisis indications; 2. preparation of a systematic plan management; 3. actions to contain the impact of the crisis; 4. recovery promoting procedures to resume normal activities; 5. learning involves critical reflection on the crisis experience; and 6. reanalysis that generates change and restructuring (Mitroff, 2005). The results from this analysis suggest that difficulties were important during in the first two phases. It appears that the lack of detection and preparedness were most critical and resulted eventually in a state-wide policy change with regard to medical reporting, gun policy, and emergency notification procedures (Wang & Hutchins, 2010).

Since the shooting at Virginia Tech in 2007, a number of articles have been published reflecting on lessons learned from the intervention plan implemented. The conclusions usually suggest the importance of preventive measures, such as the necessity of identifying potential shooters before the act (Greenberg, 2011); the need to support public health preparedness for a mass casualty incident (Armstrong & Frykberg, 2011); and the importance of evaluating the impact of the event on psychological functioning. In fact, a number of studies have evaluated different dimensions of mental health, such as short-term levels of distress (Vicary & Frley, 2010), or the impact of maladaptive coping and general psychological distress for vulnerable students (Littleton et al., 2011), or different aspect of posttraumatic symptoms. Grills-Taquechel, Littleton, & Axsom, (2011) have found that those severely exposed to the shooting bore a greater belief in the lack of control and self-worth.

Most of the studies have examined one part of the process of the intervention plan by focusing either on the organizational level or on the outcome on mental health issues. No single study evaluated the whole process including the implementation of the intervention plan, the short- or long-term outcome for students and faculty members, and the implication for health prevention, and so forth. The purpose of our study is to analyze the complete process of the intervention plan, including short- and long-term effects of a school shooting. Our aim is to discuss the lessons learned from the services offered at Dawson College in the aftermath of the shooting of September 2006. The “de facto” intervention plan implemented after the shooting offered the opportunity to: (1) analyze the mental health status of the college community 18 months after the shooting; (2) take into account the experiences and

perceptions of the intervention plan offered; and (3) suggest, based on the lessons learned, a comprehensive multimodal intervention protocol for future postcritical situations.

## Method

### Evaluation of the Services Offered at Dawson College

In the first few weeks of September 2006, a shooting took place at Dawson College, which resulted in the death of two people and the physical injury of 17 students. In the aftermath of this tragedy, the population, health and social services, justice and school sectors, and government rallied together to offer psychological and clinical services to the community of students, parents, and staff of the college. One year after the event, the Québec government announced an evaluation of the Emergency Psychological Intervention Plan. A case study research design using qualitative and quantitative methodology was implemented 18 months afterward among the students and employees who were at Dawson College on September 13, 2006.

The first arm is the evaluation of psychological impact and individual services involved a survey of the 10,000 students and employees, 948 agreed to answer a questionnaire, either computer-assisted in a room set up for this purpose at the college (28%) or on a secure Web site (72%). The questionnaires evaluated lifetime and postincident mental disorders and health perception and use of services. The questionnaires were adapted from those used in 2002 by Statistics Canada in the Canadian Community Health Survey, Cycle 1.2 on Mental Health and Well-being (CCHS 1.2).

The second arm of the evaluation gathered and analyzed data qualitatively (Mayer & Ouellet, 1991) with focus groups and individual interviews conducted with students, employees, administrative personnel, parents of students, and caregivers, in order to first assess their appreciation and evaluation of the psychological and the clinical services offered at the college in the aftermath of the shooting. The second objective was to allow the participants to voice, in hindsight, what types of psychological and clinical services would have been required. The interviews were recorded and then transcribed verbatim. The individual interviews lasted an average of 1 hour while the group interviews took 2 hours. Questions involved their assessment of services received, satisfaction and perception of the services accessed, and services that would have been needed and why. The comments were coded by theme and subsequently analyzed. The key players' descriptions of events were recorded. The verbatim transcription of every focus group and individual interviews were analyzed and contrasted in the four different dimensions of the crisis management plan—intervention philosophy; training; ongoing offer of services; and detection and outreach—in order to delineate the principles and impact of the psychological intervention plan (Contandriopoulos Champagne, Denis, & Avargues, 2000). Table 1 summarizes the themes that emerged during the focus groups.

Finally, the third arm of this research project is the development of the multimodal plan. By triangulating all the results from the survey on the psychological impact and the “de facto” plan, unmet needs emerged with potential recommendations for future plans.

The project had received the approval of the research ethics committees at Dawson College, the McGill University Health Centre, and the Fernand-Séguin Research Centre of the Louis-H. Lafontaine Hospital affiliated with the University of Montréal.

## Results

### First Arm: Evaluation of Mental Disorders, Health Perception, and Use of Services

The vast majority of respondents (79%) were present at the college during the shooting. More than one third of the respondents said they witnessed someone being wounded or killed by the shooter; 50% heard gunshots; and 52% hid with other people (the respondents may have experienced more than one of these situations). After the shooting, approximately 18% of the respondents developed a mental disorder for the first time in their life. The incidence of episodes of posttraumatic stress disorder (PTSD) was observed among 1.8% of the participants, major depression among 5%, alcohol dependency among 5%, and social phobia among 3% of the participants. Moreover, an additional 12% of the respondents, having already experienced mental disorders in their lifetime before the shooting, continued to experience the presence of disorders in the 18 months following the shooting. The greater and the closer the exposure was to the event, the greater the risk was of developing a mental disorder. Taking into account comorbidity of disorders in some individuals, this total of 30% of respondents who suffered from one of the mental disorders in the aftermath of the mass violent incident is actually twice as many as the number observed in the 2002 Canadian general population survey on mental health and well-being conducted with similar questionnaires.

More than 80% of those having consulted at least one resource felt they had received at least one satisfactory service, but close to half said they would have needed additional service. Among the additional services required, information and psychotherapy/counseling were cited most frequently. The majority of people presenting a mental disorder after the shooting did not consult professional services, but this was no different from the search for support in the 2002 mental health and well-being survey population reporting a mental disorder. The reason cited most often for that was acceptability (the problem will go away by itself), even though this was clearly not the case after 18 months for many respondents based on the 30% prevalence of PTSD, affective and anxiety disorders, and substance abuse disorders.

Accessibility to services was identified by 14% of the respondents, as a reason explaining why their need for support was not met. The majority of students and employees with psychological wounds did not consult professionals, but evidence from the survey suggests that they used the Internet as a resource to inform themselves on mental health issues and services. In that sense, the majority would therefore have been willing to consult if there had been a link between the Web sites and mental health services, facilitating the expressed wish to receive psychotherapy/counseling.

### Second Arm: Evaluation of the Experiences and Perceptions of the Intervention Plan

**Intervention philosophy**—The intervention plan implemented at Dawson College after the shooting of September 13, although created in an ad hoc manner, was based upon a

theoretical framework focusing on posttraumatic intervention, crisis intervention, and resilience. In the first moments of the shooting, while police authorities were searching for other potential shooters inside the college and were evacuating the school and helping with medical emergencies, the first psychosocial crisis team clinicians were waiting outside the school for permission from authorities to go in the school and help with psychological interventions. This authorization never came, since the school was treated and protected as a crime scene, which created resentment between the interveners and the authorities, because one group believed that they were not able to do their work. However, when the students were asked about what they needed at that moment, they all had but one objective—to get home to their families, illustrating the need for safety as being the first principle of a trauma-based intervention strategy suggested by Hobfoll et al. (2007). These conflicted ideas of what should be the best intervention, even if it demonstrates willingness by everyone to help, are examples of a lack of a shared common intervention philosophy.

Another example of conflicted ideas has to do with restoring a sense of self-efficacy versus collective efficacy. The crisis intervention team relied on the students' and employees' capacity for resilience as a major variable in their recovery. Taking these factors into consideration, a number of interventions were put into place: the preparation of the college for the return of the employees, and then the students several days later (as quickly as possible in order to reestablish a support structure); the reappropriation of the campus by the college population; the presence of numerous mental health professionals on site to support anyone requiring intervention; the possibility of meeting with mental health professionals upon request in the days and weeks after classes resumed; and the planning of rituals and commemorations, to name a few. Throughout these activities of reintegration on campus and the return to school, a culture of collective resilience emerged that provided strength to the campus community, as well as the sense that they had the ability to overcome adversity.

In the days and weeks after the return to the college, the students and employees were invited to consult mental health professionals on the premises. Because the lack of space did not allow closed offices to be available for everyone, during the first week, mental health professionals were set-up in the library and received “patients” in semiopen cubicles. It was felt that this setup set a tone of openness to the consultation and encouraged an attitude of nondramatization and normalization to the consultation process, which would have been perceived as natural under the circumstances. While some people understood this approach and were comfortable with this arrangement, others felt too exposed, and that they had little or no privacy. Some people chose not to consult, concerned with the lack of confidentiality. Others, especially teachers and employees, were concerned about taking the place of students who may have needed protection and support more than they did. For some teachers, as well as for other employees who wanted to be perceived by students as potential sources of support, it was felt that having to consult mental health professionals in the same place as students undermined or discredited this role. Therefore, two core values were at odds: normalization associated with the request for support, and wanting to maintain a supportive role for the students. This example illustrates the potential problems that can arise when services are offered using a single mode of intervention even in the immediate aftermath of the event.

**Training of mental health professionals**—During the period of reappropriation of the college, several mental health professionals were solicited to offer consultations to the Dawson College community. This approach was intended to foster timely interventions to address emerging problems. However, not all mental health professionals had training or expertise in posttraumatic or crisis intervention. Conducting interviews in such a context may be different from what they do in their usual practice. In crisis situations, mental health professionals must be more active and directive, and must target their diagnostic evaluations toward the detection of specific risk factors. A number of students and community members felt that the clinicians seemed too tired, and were unable to give the proper counseling. It is possible that several professionals, without the proper training, felt overwhelmed in these first weeks, which may explain why some respondents indicated that the engagement in treatment was not met.

**Ongoing offer of services**—Gradually, according to reduced requests for support, the mental health professionals still at the college moved from cubicles to enclosed offices; some remained on the premises for 6 months following the shooting. These mental health professionals were less visible, and therefore not as sought out. In this context, their presence became of secondary importance. This illustrates the difficulties of continuous accessibility to services specialized in mental health. The regular presence of professionals trained in detecting and treating common mental health disorders (like depression/adaptation difficulties, substance abuse, and anxiety disorders) in the school and workplace should encourage students to adopt the habit of consulting when necessary. This habit would not have to be developed only during critical situations. As reported mainly by students and parents, many of them recognized the need for help and consultation only months, and even 2 years, following the event. In many cases, the disorders were not temporary, and the need for support that was clearly identifiable in the first days, even in the first months, was still present, 18 months after the event, hence the importance of having ongoing services and long-term outreach activities. Moreover, detection activities in an outreach mode would have allowed some people to be referred to mental health services. As well, unknown to mental health professionals, there was extensive use of the Internet; more than 14% of students and employees sought and received information on mental health issues by visiting various Web sites (Roy et al., 2010; Boyer et al., 2010). However, the Internet was not used by mental health professionals to follow up providing confidential detection tools or offer consultation services.

**Detection of individuals in need and the importance of outreach activities**—The philosophy of the crisis intervention team relied on the capacity for resilience of the college community and on their ability to express their needs and to request psychological help. There were very few detection, identification, and outreach activities. It would probably have been preferable to develop detection activities specifically for the groups at risk, that is, systematic detection activities for individuals who were directly exposed to the shooting, as well as education and psychosocial education based on theoretical knowledge such as information about mental disorders and the efficacy of psychotherapy. These activities might have been beneficial and would have fostered a greater capacity for detection by teachers, friends, parents, and so forth, as well as self-detection. Consequently,



this would have encouraged the community to make greater use of the psychological services offered. Lastly, along the same lines, the lack of structured, specific outreach philosophy did not ensure comprehensive follow-up and case management for vulnerable students and especially wounded students and their families. It should be noted, however, that numerous interventions were made informally, either by a teacher toward a student, or a manager toward a student or staff member. In some cases, formal and structured interventions were offered by mental health professionals. It is therefore necessary to set up a formal and extensive mental health program of prevention and intervention in a school or workplace community in preparation and following a disaster like mass violent incidents.

### Third Arm: Implications for Practice

**Comprehensive multimodal intervention protocol for future postcritical situations**—Based on the lessons learned through the evaluation of the psychological impact and intervention plan observed at Dawson, we suggested a multimodal intervention plan for future postcritical situations (Séguin et al., 2010). In essence, this protocol suggests that interventions should be based on clear theoretical models, which should guide the choices of interventions. Any intervention must be guided by a theoretical framework, which allows justifying a model of intervention. In the case of a long-term intervention plan dealing with a violent and traumatic event, no single theoretical model can support and orient actions over a long period. By combining theoretical models, we can better conceptualize the needs for each phase in the intervention process (see Figure 1). As the people's needs evolve, it is appropriate to adopt different theoretical models in order to better respond to the needs of the population at risk. Over time, the actions to be taken and the people responsible for these interventions will change. Since there is no “one-size-fits-all” model, events, context, and environmental variables should be considered in the development of any trauma-based intervention model and should be based on evidence-informed literature (Hobfoll et al., 2007).

**Period I (Pre-impact)**—This period is based on a healthy workplace model that enhances resilience among individuals and prevents the development violence, of new cases of mental disorders and substance abuse by acting on psychosocial factors present in the work organization that a school represents, decreasing stigma associated with mental disorders/ substance abuse and consulting facilitated within the work environment (Institute of Health Economics & Mental Health Commission of Canada, 2008).

**Period II (impact)**—Emergency intervention and posttraumatic treatment models must take precedence during this period, and the goal is to ensure immediate medical help for the wounded, securing the premises, and so forth. Care for the victims and their loved ones must be a priority. During this period, hospitals often experience a surge, consisting of the arrival of victims and family members and friends seeking information about their loved ones. Hospitals must include a plan to provide psychological support to those who will learn of the death or precarious health status of a loved one in their emergency medical protocols (Code Orange). This plan must also provide care for psychologically traumatized people who will show up. Families, visitors, and onlookers must be separated into subgroups and helped accordingly.

**Period III (postimmediate)**—During the days following the impact, a crisis/trauma intervention model, as well as the enhancing of resilience in the community, must guide actions. Most individuals will have sufficient capacities to overcome this adversity, but some will need support. One must ensure that individuals recognized as presenting a higher risk of psychological trauma are identified and implement all activities to assure engagement in services and their follow-up activities (International Crisis Response Network, ICRN). This model, developed by the International School Psychology Association (Jimerson et al., 2005), aims for the reappropriation of premises, the return to school, the identification of subgroups at risk, and so forth.

Based on evidence gathered during the Dawson College study, it seems that the risk of psychological trauma increases with proximity to violence (Boyer et al., 2010; Roy et al., 2010). As well, the individuals who had previously experienced mental health problems were more at risk of being affected. It may therefore be necessary to develop interventions specifically for the specific groups. The primary group shall be considered psychologically wounded and in need of active outreach and long-term case management: 1) people wounded physically, as well as the families, friends, and loved ones of those wounded or killed; and 2) people who were present at the college and directly exposed to the violence (direct witnesses). The secondary group shall be considered with lower resilience or at higher risk, and systematically identified and outreached: 1) people with preexisting mental health disorders as well as those at risk for suicidal or aggressive behaviors who are not included in the primary groups; and 2) people exposed by virtue of their positions at the college either through therapeutic relationships, or administrative or support implications (e.g., those who participated in the physical clean-up of the premises after the incident). The tertiary group at similar risk as the general population shall be outreached as in the good practice preimpact environments suggested above, namely, people not falling in the preceding groups, on the premises, but not directly exposed (indirect witnesses).

After the period of impact, the repercussions of the events become more real, it becomes more pressing to identify people who maintain temporary stress reactions days following a violent and traumatic event.

**Period IV (the first weeks posttrauma)**—During this period, interventions are proactive and their goal is to screen for individuals with acute disorders. Psychosocial education, which gives better understanding of the various aspects of mental health, must be set up and maintained regularly. These activities can be carried out in classes or staff meetings (for employees) allowing for small group discussions, fostering literacy on mental health problems and possibly helping individuals identify that they need help. Screening tools on the college's Web site can also prove to be effective not only with students, but also with employees. These electronic screening tools can be linked to a mental health professional that can then refer vulnerable people to the appropriate services.

**Period V (period of long-term vigilance)**—Period V refers to the long term, which extends into the months and years following the event. It relies upon the ability of the community-at-large to better accommodate the needs of people with mental disorders in schools and the workplace. Maintaining a healthy environment depends on a holistic

approach to both physical and mental health, identification of risk factors in the workplace environment (Vézina, Bourbonnais, Brisson, & Trudel, 2004; BNQ, 2008) and the therapeutic management of common mental health disorders according to the chronic disease model (Institute of Health Economics & Mental Health Commission of Canada, 2008). It moves toward the good workplace practices suggested to preimpact.

## Discussion

Lessons learned from this evaluation and other school shootings suggest that preparedness and long-term community responses are often overlooked. Based on results obtained during the focus groups, the individual interviews and the answers on the questionnaires about their health perceptions of need of services, the community pointed to difficulties in the preimpact/impact, and the long-term period.

The preimpact period points to the difficulties in identifying students and/or community members who are vulnerable and in implementing an atmosphere of healthy mental health workplace/environment. The presence of ongoing activities such as mental health literacy and accessibility of consultation may help members of communities to identify their own vulnerability and seek help when experiencing mental health difficulties, especially in situations of traumatic experiences. Therefore, these habits of seeking help would not need to be learned during a crisis period, which is often an objective in most intervention plans. Another example underscored in the coroners' investigation identified the presence of Internet messages, aggressive behaviors and the purchase of firearms by the shooter (Coroner's Office, 2009). Again, the importance of a national mental health program promoting a sound mental health environment could help in the detection of vulnerable individuals.

The difficulties during the impact period were mostly based on the lack of a common intervention model, which opposes the needs of security services (police), the needs of clinicians to help with psychological emergency, and the needs of the Dawson community who wanted to "go home." Shared common intervention conceptualization could help identify the choice of interventions and subgroups to target for interventions.

Difficulties in the long-term period suggest that mental health difficulties have been underestimated. The most common problem observed was that the identification of chronic difficulties, such as affective disorders, addictive disorders, and violent behaviors, were often overlooked. A balanced psychological intervention program promotes a feeling of empowerment, and, although it relies on the resilience of students and employees, it does not assume that, in time, all members of the community will heal. It is necessary to maintain a positive outlook regarding resilience, but also to recognize that individual vulnerabilities may be present as well. Psychosocial education and a watchful attitude can foster ongoing screening activities and social networking initiatives, as well as the self-screening of vulnerable students and staff. It will be necessary to adapt these interventions since different types of mental health problems may change from acute to more chronic difficulties with time. Appropriate training and the competencies of the mental health professionals will

ensure their ability to screen, identify, evaluate, and appropriately intervene with the groups at risk.

### Limitations

There are numbers of limitations. First, the recall biases or imprecise information (Beskow, Runeson, & Asgard, 1990; Burgess, Pirkis, Morton, & Croke, 2000) are among the limitations of assessing psychopathology and life events. Nevertheless, studies show (Lin, Ensel, & Lai, 1997) that the recall error usually reflected underreporting rather than overreporting, and the extent of recall errors tends to be greater for chronic and routine changes and less for personal and family experience. We recognize that our findings are based on a small sample which may not be representative of the Dawson population. It is difficult to assess the needs of those who did not participate in the study.

### Conclusion

Posttraumatic programs must move toward a shift in paradigm to become multimodal and comprehensive. In suicide prevention, rare empirically evidenced effective populational programs are indeed multilayered (Knox et al., 2010). It must be rooted in the community's capacity—beyond immediate emergency psychosocial response—to detect, identify, and respond to common mental health disorders. This paradigm shift must include various psychological interventions, with built-in flexibility during the period of detection and intervention for acute disorders, as well as for chronic disorders, which may exacerbate or be perpetuated over a longer period of time. Crisis management plans should be based on common shared theoretical models of support and mental health wellness, instead of offering long checklists of targeted interventions for different specific periods of interventions. Thus, this common vision will necessitate a shared understanding of mental health issues and interventions, and require well-trained mental health and community interveners.

### Acknowledgments

This project was supported financially by the Ministry of Justice of Quebec.

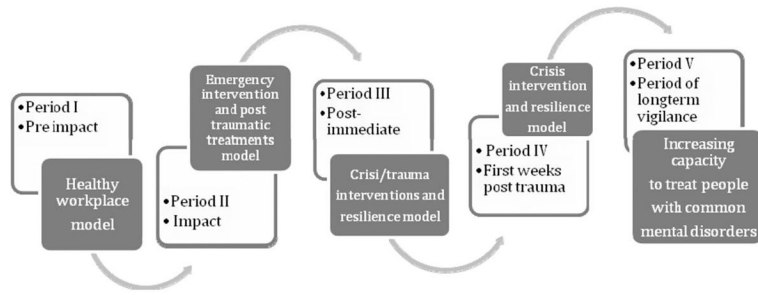
### References

- Armstrong J, Frykberg E. Lessons from the response to the Virginia Tech shootings. *Disaster Medicine and Public Health Preparedness*. 2011; 1:7–8. DOI: 10.1097/DMP.0b013e3181514969
- Beskow J, Runeson B, Asgard U. Psychological autopsies: Methods and ethics. *Suicide Life Threatening Behavior*. 1990; 20:307–323. [PubMed: 2087767]
- Boyer R, Lesage A, Guay S, Bleau P, Séguin M, Steiner W, Chawky N. Report on a study conducted with students and staff of Dawson College on the psychological impact of the incident and the search for support. Second of four reports presented to the Ministère de la Justice du Québec on the evaluation of the psychological impact and intervention after the shooting at Dawson College on September. 2010; 13:2006. Available at <http://www.hlhl.qc.ca/dawsonproject.html#reports>.
- Burgess P, Pirkis J, Morton J, Croke E. Lessons from a comprehensive clinical audit of users of psychiatric services who committed suicide. *Psychiatric Services*. 2000; 51:1555–1560. DOI: 10.1176/appi.ps.51.12.1555 [PubMed: 11097653]
- Carver, CS., Scheier, MF. *On self-regulation of behavior*. New York, NY: Cambridge University Press; 1998.

- Contandriopoulos AP, Champagne F, Denis JL, Avargues MC. Evaluation in the health sector: Concepts and methods. *Revue Épidémiologique de Santé Publique*. 2000; 48:517–539.
- Gibson EL, Ruzek J, Naturale A, Watson P, Bryant R, Rynearson T, Hamblen J. Intervention for individuals after mass violence and disaster: Recommendations from the Roundtable on Screening and Assessment, Outreach and Intervention for Mental Health and Substance Abuse Needs Following Disasters and Mass Violence. *Journal of Trauma Practice*. 2006; 5:1–28. DOI: 10.1300/J189v05n04\_01
- Government of Québec. Bureau de Normalisation du Québec. Prevention, Promotion and Organisational Practices Contributing to Health in the Workplace. 2008. Standard BNQ 9700-800/2008 Available at <http://www.bnq.qc.ca/en/index.html>
- Government of Québec. Bureau du Coroner. Rapport du coroner suite à la fusillade au Collège Dawson. Rapport et recommandations. 2008. Dossier 133713, 133714. Accessible online at [http://www.coroner.gouv.qc.ca/index.php/id/rechercher\\_recommandations](http://www.coroner.gouv.qc.ca/index.php/id/rechercher_recommandations)
- Greenberg S. Active shooters on college campuses: Conflicting advice, roles of the individual and first responder, and the need to maintain perspective. *Disaster Medicine and Public Health Preparedness*. 2011; 1:57–61. DOI: 10.1097/DMP.0b013e318149f492
- Grills–Taquechel A, Littleton H, Axsom D. Social support, world assumptions and exposure as predictors of anxiety and quality of life following a mass trauma. *Journal of Anxiety Disorders*. 2011; 25:498–506. DOI: 10.1016/j.janxdis.2010.12.003 [PubMed: 21236630]
- Hawdon J, Ryan J. Social relations that generate and sustain solidarity after a mass tragedy. *Social Forces*. 2011; 89:1363–1384. DOI: 10.1093/sf/89.4.1363
- Hobfoll S, Watson P, Bell C, Bryant R, Brymer M, Friedman M, Ursano R. Five essential elements of immediate and mid-term mass trauma intervention: Empirical evidence. *Psychiatry*. 2007; 70:283–315. DOI: 10.1521/psyc.2007.70.4.283 [PubMed: 18181708]
- Hutchins H, Wang J. Organizational crisis management and human resource development: A review of the literature and implications to HRD research and practice. *Advances in Developing Human Resources*. 2008; 10:310–330. DOI: 10.1177/1523422308316183
- Institute of Health Economics, Alberta Health Services & Mental Health Commission of Canada. Consensus statement on depression in adults. How to improve prevention, diagnosis and treatment. 2008. Accessible online at [www.ihe.ca](http://www.ihe.ca)
- Janoff-Bulman, R. Shattered assumptions: Towards a new psychology of trauma. New York, NY: Free Press; 1992.
- Jaycox L, McCaffrey D, Eiseman B, Aronoff J, Shelly G, Collins R, Marshall G. Impact of a school-based dating violence prevention program among Latino teens: Randomized controlled effectiveness trial. *Journal of Adolescent Health*. 2006; 39:694–704. DOI: 10.1016/j.jadohealth.2006.05.002 [PubMed: 17046506]
- Jimerson SR, Brock SE, Pletcher SW. An integrated model of school crisis preparedness and intervention. *School Psychology International*. 2005; 26:275–296. DOI: 10.1177/0143034305055974
- Kaniasty K, Norris FH. A test of the social support deterioration model in the context of natural disaster. *Journal of Personality and Social Psychology*. 1993; 64:395–408. DOI: 10.1037/0022-3514.64.3.395 [PubMed: 8468668]
- Knox KL, Litts DA, Talcott WG, Feig JC, Caine ED. Risk of suicide and related adverse outcomes after exposure to a suicide prevention programme in the US Air Force: Cohort study. *British Medical Journal*. 2003; 327:1–5. DOI: 10.1136/bmj.327.7428.1376 [PubMed: 12842922]
- Lahad, M. Basic ph: The story of coping resources. In: Lahad, M., Cohen, A., editors. *Community stress prevention*. Vol. 1 and 2. Kiryat Shmona, Israel: Community Stress Prevention Center; 1997. p. 117-143.
- Lin, N., Ensel, W., Lai, W. Construction and use of the life history calendar: Reliability and validity recall data. In: Gotlib, IH., Wheaton, B., editors. *Stress and adversity over the life course. Trajectories and turning points*. New York, NY: Cambridge University Press; 1997. p. 178-204.
- Littleton H, Axsom D, Grills–Taquechel AE. Longitudinal evaluation of the relationship between maladaptive trauma coping and distress: Examination following the mass shooting at Virginia

Tech. Anxiety, Stress & Coping: An International Journal. 2011; 24:273–290. DOI: 10.1080/10615806.2010.500722

- Martel, C., Brunet, A. L'intervention psychosociale lors de sinistres. In: Séguin, M., Brunet, A., Leblanc, L., editors. *Intervention en situation de crise et en contexte traumatique*. Montréal, Québec, Canada: Chenelière Education, Gaétan Morin Ed; 2006. p. 1712-1706.
- Mayer, R., Ouellet, F. *Méthodologie de recherche pour les intervenants sociaux*. Montréal, Québec, Canada: Gaétan Morin Ed; 1991.
- Mitroff, I. *Why some companies emerge stronger and better from a crisis*. New York, NY: AMACOM; 2010.
- Pynoos RS, Fairbank JA, Steinberg AM, Amaya-Jackson L, Gerrity E, Mount ML, Maze J. The National Traumatic Stress Network: Collaborating to Improve the Standard of Care. *Professional Psychology: Research and Practice*. 2008; 39:389–395. DOI: 10.1037/a0012551
- Roy D, Lesage A, Séguin M, Chawky N, Boyer R, Guay S, Miquelon P. Evaluation of the emergency psychological intervention plan. First of four reports presented to the Ministère de la Justice du Québec on the evaluation of the psychological impact and intervention after the shooting at Dawson College on September 13, 2006. 2010 Sep. 2010 Available at <http://www.hlhl.qc.ca/dawsonproject.html#reports>.
- Schmeidler J, Laraque D. Children who lost a parent as a result of the terrorist attacks of September 11, 2001: Registry construction and population description. *Death Studies*. 2007; 31:87–100. DOI: 10.1080/07481180600995263 [PubMed: 17131563]
- Séguin, M., Chawky, N., Guay, S., Szkrumelak, N., Lesage, A., Bleau, P., Roy, D. SECUR: Plan multimodal d'intervention psychologique en cas de fusillade en milieu scolaire. Troisième de 4 rapports déposés au Ministère de la Justice du Québec sur l'évaluation de l'impact psychologique et de l'intervention psychologique suite à la fusillade au Collège Dawson le 13 septembre 2006. 2010. Retrieved from <http://www.hlhl.qc.ca/publications/centre-de-recherche-fernand-seguin/etudes.html>
- Vernberg EM, Steingerg AM, Jacobs AK, Brymer MJ, Watson PJ, Osofsky JD, Ruzek JI. Innovation in disaster mental health: Psychological first aid. *Professional Psychology: Research and Practice*. 2008; 39:381–388. DOI: 10.1037/a0012663
- Vézina M, Bourbonnais R, Brisson C, Trudel L. Workplace prevention and promotion strategies. *Healthcare Papers*. 2004; 5:32–44. [PubMed: 15829763]
- Vicary A, Fraley C. Student reactions to the shootings at Virginia Tech and Northern Illinois University: Does sharing grief support over the Internet affect recovery? *Personality and Social Psychology Bulletin*. 2010; 36:1555–1563. DOI: 10.1177/0146167210384880 [PubMed: 20876385]
- Wang J, Hutchins H. Crisis management in higher education: What have we learned from Virginia Tech? *Advances in Developing Human Resources*. 2010; 12:552–572. DOI: 10.1177/1523422310394433
- Young, M. The community crisis response team: The National and Organization for Victim Assistance protocol. In: Brock, SE., Lazarus, PJ., Jmerson, SR., editors. *Best practices in school crisis prevention and intervention*. Bethesda, MD: National Association of School Psychologists; 2002. p. 333-354.



**Figure 1.** Multimodal plan: A sequential process over time with interventions specific to each phase.

Table 1

## Description of Objectives and Tasks of the Multimodal Intervention Plan

Period	Period I (preimpact)	Period II (impact)	Period III (postimmediate)	Period IV (first weeks posttrauma)	Period V (long-term vigilance)
Conceptual models	Healthy workplace model and prevention of violence	Emergency intervention and posttraumatic treatment models	Crisis/trauma intervention model as well as enhancing of resilience in the community	Crisis intervention and resiliency models	Maintaining a healthy environment depends on a holistic approach to both physical and mental health
Objective	To enhance resilience among individuals To prevent violence To prevent mental disorders and substance abuse To act on psychosocial factors present in the work organization To prepare a multimodal intervention plan (see task below)	The interventions during the first moments after the shooting are generally coordinated with emergency services (police, medical emergency services, etc.) and their goal is to ensure immediate medical help for the wounded, securing the premises, etc.	To ensure the identification of individuals/subgroups recognized at higher risk of psychological difficulties and plan the follow-up	To target people with acute stress, posttraumatic stress disorder and problems in functioning in order to increase empowerment and resilience in the community	It relies upon the ability of the community-at-large to accommodate the increased needs for people with mental disorders in schools and the workplace
Task	(1) Training personnel for logistical and psychosocial needs  (2) Updating emergency protocols regularly  (3) Ensuring, with local and regional authorities, that they have access to the necessary material (psychological intervention kits)  (4) Maintaining links with their partners who will have to intervene in the event that an emergency plan is set in motion  (5) Maintaining a healthy school and workplace environment	(1) Helping people in danger  (2) Making them feel safe  (3) Securing the premises  (4) Filling practical needs  (5) Dealing with the surge of people converging on the school and local hospitals to receive help or obtain information about a loved one  (6) Providing psychological support (Orange Code)	(1) Organizing informational activities of re-appropriation and return to school  (2) Providing information on the signs and symptoms associated with the risk of posttraumatic stress disorder, depression, etc.  (3) Promoting the presence of psychological services  (4) Encouraging people to consult services  (5) Developing support  (6) Providing information and referral services for parents, families and loved ones  (7) Providing online consultation tools, information about symptoms and services	(1) Providing psychosocial education, in class  (2) Providing accessibility of screening tools on the Web site  (2) Maintaining psychological services within the school  (2) Allowing easy and immediate access to support  (3) Providing accessibility to specialized mental health services must also be planned for in order to be able to refer people with more complex problems	(1) Preventing violence  (2) Identifying risk factors in the workplace environment  (3) Planning the therapeutic management of common mental health disorders