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# The impact of situational management strategies on episodic severity

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## Abstract

**Background:** LaVigna and Willis' (2002; 2005a) multi-element model includes a variety of non-aversive situational management strategies to assist people to reduce the episodic severity (ES) of behavioural incidents without the need for restrictive procedures.

**Method:** In this study we introduced some or all of these situational management strategies to reduce ES with 3 adult persons with ASD and with one adolescent dealing with trauma. A multiple baseline design across participants was used to determine the effect of these strategies on ES.

**Results:** ES was decreased for all of the participants and these effects persisted across time. Results also showed that the rate of occurrence decreased.

**Conclusions:** These findings show that the positive situational support strategies proposed by LaVigna and Willis (2002) and Willis and LaVigna (2004) may have significant utility in decreasing ES in persons challenged by behaviour. Non-aversive situational management shows promise as an effective strategy to rapidly reduce ES precluding the need for restrictive practices.

## Keywords:

tbc

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## Introduction

Intellectual disability is synonymous with decreased mental functioning and adaptive skills deficits, and it is reported that up to 50% of persons with intellectual disability display challenging behaviour (Tyrer et al, 2008). The implications of such behaviours can carry with them enormous physical, social, educational and economic consequences (Hudson et al, 1995). This has led to a number of restrictive intervention strategies being utilised by care givers and staff to reduce the risk of injury to the individual and carers, such as physical management, restraint or seclusion and PRN medication (Royal College of Psychiatrists et al, 2007; Oliver et al, 1998).

Traditionally, the success of a support plan has been measured only by the changes in behaviour over time (eg measures of the frequency, duration and intensity of target behaviours) when using proactive measures. However, focus has not been placed on the degree to or speed with which a behavioural incident can be safely resolved (ie when reactive strategies are required). As a result, practitioners have tended to look beyond Applied Behaviour Analysis (ABA) to emergency management systems such as Mandt, Nappi, and CPI, which have not been empirically tested for their effect on episodic severity (LaVigna and Willis, 2005a). Established evidence (Malott, Whaley and

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Malott, 1997) suggests that the aversive components of these emergency management systems may, due to the degree of aversiveness, actually escalate the severity of a behavioural episode. Within the field of ABA exists a number of technologies (stimulus change, chain interruption, strategic capitulation, etc) that allow the safe resolution of behavioural incidents and negate the need for non-ABA based emergency management systems.

LaVigna and Willis (2005a) suggest research could focus on reducing the 'episodic severity' (ie the measured gravity or intensity) of the behaviour when and if it occurs.

*'ES is defined as a measure of the gravity or intensity of a behavioral incident. In this usage, the word episodic does not mean intermittent but, rather, means "with respect to an episode". Therefore, episodic severity would not be measured over time (e.g., 4.5 hr total duration a week, or five trips to the hospital per month for medical treatment due to self-injury) but, rather, within the cycle of a behavioral incident (e.g., an average duration of 1hr per episode, with a range of 5mins to 2hrs per episode, or an average severity rating of 3.2 for episodes of self-injury, with a rating range of 2 to 5, using a 5-point scale of severity, with level 5 representing the need to go to the hospital for medical treatment as a result of the episode). The cycle of a behavioral incident would be circumscribed by its defined onset and offset, or boundaries.'* (LaVigna and Willis, 2005a, p 48)

Thus, LaVigna and Willis propose the introduction of a dependent variable (ie episodic severity) that will provide the opportunity to empirically test situational management strategies.

For example, the ES of aggression can be measured in various ways; the first includes measuring the degree of harm or injury resulting from the incident. Other measures of ES might involve examining the number or kind of topographies occurring during the behavioural incident. This is a significant consideration given that specific topographies of aggression can lead to significant harm. Social outcomes like psychological impact, time off work, increases in peer stress and/or social isolation resulting from the incident may also be examined to indicate an episode's intensity. The intrusiveness or restrictive nature of situational management strategies which may include the use of restraining

devices, may be in itself an indicator of the level of ES or in some cases, a setting event or antecedent for increased ES.

There is a need to research non-aversive situational management strategies that result in the immediate reduction in the episodic severity of the challenging behaviour. This paper examines the impact on episodic severity of chain interruption, stimulus change, strategic capitulation and geographical positioning as described by LaVigna and Willis (2002) and Willis and LaVigna (2004) in their *Emergency Management Guidelines*.

What follows is a brief description of the strategies used. Chain interruption involved diversion to a powerfully preferred or compelling event or activity. This activity or event was intended to divert the person from what they were doing (LaVigna and Willis, 2002; Willis and LaVigna, 2004). Stimulus change was a novel and sudden change in ambient stimuli that is non-aversive and produced immediate (although transitory), suppression in responding (LaVigna, Willis and Donellan, 1989). Strategic capitulation involved giving in to the communicative message of the person's behavioural incident. That is, if you know what the message is from the behaviour, meeting the function of the message will result in the behaviour stopping (LaVigna and Willis, 2002; and Willis and LaVigna, 2004). Geographical positioning involved the use of the immediate environment to minimise or to eliminate the consequences of behaviour that may have caused injury or damage to the carer or others; that was avoiding physical contact with the person by positioning objects in the environment between the carer and individual (Willis and LaVigna, 2004).

## Method

### Description of participants

Participants included four persons who had been referred for Positive Behavioural Support services. All participants had 24-hour staffing supplied by the state. All participants lived with one other person in a state-run residential home.

Person 1 is a 29-year-old male with a DSM-V (American Psychiatric Association, 2013) diagnosis of autism level II. He had a 20-year history of aggression toward others, which included hitting others with open and closed hands to the right and left side of the head and chest. The ES of this behaviour had resulted in medical treatment of others and police involvement.

Person 2 is a 14-year-old female with a diagnosis of mild ID and trauma. She had a three-year history of property damage, which included kicking, punching and throwing property. The ES of the behaviour had resulted in damage of more than AU\$20,000 within a single episode, police involvement and incarceration.

Person 3 is a 24-year-old male with a DSM-V diagnosis of autism level III. He had an eight-year history of aggression toward others, which included hitting others with closed hands to head or chest, kicking to legs or groin and pushing people over. The ES of his behaviour had resulted in medical treatment of others and police involvement.

Person 4 is a 21-year-old male with a DSM-V diagnosis of Autism level III. He had a 17-year history of self injurious behaviour (SIB) which included hitting his head with closed and open hands or against hard surfaces. The ES of the behaviour had resulted in tissue injury requiring first aid.

Situational management of ES investigated in this study for the four participants included capitulation, chain interruption, stimulus change and geographical positioning.

## Design

A functional assessment (Willis, LaVigna and Donnellan, 2011) was completed for the four participants by a behaviour specialist. This assessment informed the operational definition of problem behaviour inclusive of occurrence measures and ES measures (duration, outcomes and cost of repair or replacement) as recommended by Willis, LaVigna and Donnellan (2011). Based on the operational definition, ES scales were constructed for each individual (LaVigna and Willis, 2005a).

The assessment also helped to identify which actions and reactions of staff tended to increase ES and which tended to decrease it. This information then informed the development of situational management strategies by the behaviour specialists for each individual to decrease the ES of incidents. Differential reinforcement of other behaviour schedules (DRO) were also developed to impact on the frequency of the behaviour and were applied during the situational management phase.

Staff were trained in the use of the situational management strategies, DRO and data collection via verbal competence and simulated competence as described by LaVigna et al (1994). The behaviour specialist spent approximately 12 hours in design and implementation

of the intervention components described above for each participant.

A multiple-baseline design was used to demonstrate the effect of the situational management by showing changes across the individual's ES when the situational management was introduced. The design attempts to control for the effect of extraneous events, demonstrating that specific changes in ES were associated with the situational management strategies at different points in time for each participant (Bailey and Burch, 2002). The participants in the study continued with the routine, lifestyle and support structure prior to referral during the baseline and intervention period of the study. Additional multi-element procedures of support were added at the completion of the study. The intervention for each participant was introduced at the completion of the functional assessment, design of situational management strategies and data collection sheet. Training of staff on the strategies and data collection concluded with the beginning of the intervention on the first day of the next calendar week. As this was a field-based study the baseline periods and intervention were set at 19 weeks as this was considered realistic to complete the assessment, design the strategies and train the staff, and allowed for some stability in the staggered baseline measures and some stability within the staggered intervention measures for each participant.

## Response measures and inter observer agreement

The dependent variable was the measure of ES during an incident. The independent variable was the situational management strategies used to react to the behaviour during the incident. As shown in *Table 1*, the measure of ES was scored via a five-point scale of severity for participants 1 (P1), 3 (P3) and 4 (P4) and via a seven-point scale for participant 2 (P2). After applying the situational management strategies, the severity of an episode of aggression toward a person, property damage and self injury were measured, depending on the outcome of the event using these scales.

Data were collected 24 hours a day by the group home staff on a prepared data sheet at the offset of an episode. An episode was the occurrence of one or more target responses with defined onset/offset criteria for the incident. Recording of the behavioural episode included the objective measure of its ES based on a five or seven-point scale for a single episode of target behaviour as shown in *Table 1*. Data were tallied and reviewed by the behaviour specialist team on a weekly basis.

**Table 1:** Episodic severity measures for the four participants

<b>Participant # (Challenging Behaviour)</b>	<b>ES Measure</b>
<b>One (aggression)</b>	5 - Time off work for the injured person 4 - Medical treatment for the injured person 3 - First aid required 2 - Physical injury not requiring first aid 1 - No physical injury
<b>Two (property damage)</b>	7 - Significant damage to object/s estimated cost of repair or replace is more than \$3000 6 - Significant damage to object/s estimated cost of repair or replace is more than \$2000 but less than \$3000 5 - Significant damage to object/s estimated cost to repair or replace is more than \$1000 but less than \$2000. 4- Significant damage to an object/s estimated cost to repair or replace is more than \$500 but less than \$1000. 3 - Damage to object/s estimated cost to repair or replace is less than \$500 2 - Damage to objects but do not require repair 1 - No damage occurred to object
<b>Three (aggression)</b>	5 - Time off work for the injured person 4 - Medical treatment for the injured person 3 - First aid required 2 - Physical injury not requiring first aid 1 - No physical injury
<b>Four (self injury)</b>	5 - Emergency services called 4 - Medical treatment for injury required 3 - First aide required for injury 2 - Injury not requiring first aid 1 - No physical injury

**Reliability checks**

Casual reliability on the data recording procedure was conducted by the behaviour specialist observing whether staff recorded the occurrence of ES on data sheets at the offset while he/she was present and an event occurred. Casual reliability was 100%. Procedural integrity (fidelity), the correct application of the situational management strategies by staff during an incident, was conducted via the behaviour specialists and ranged from 80% to 100%, with a mean of 93%.

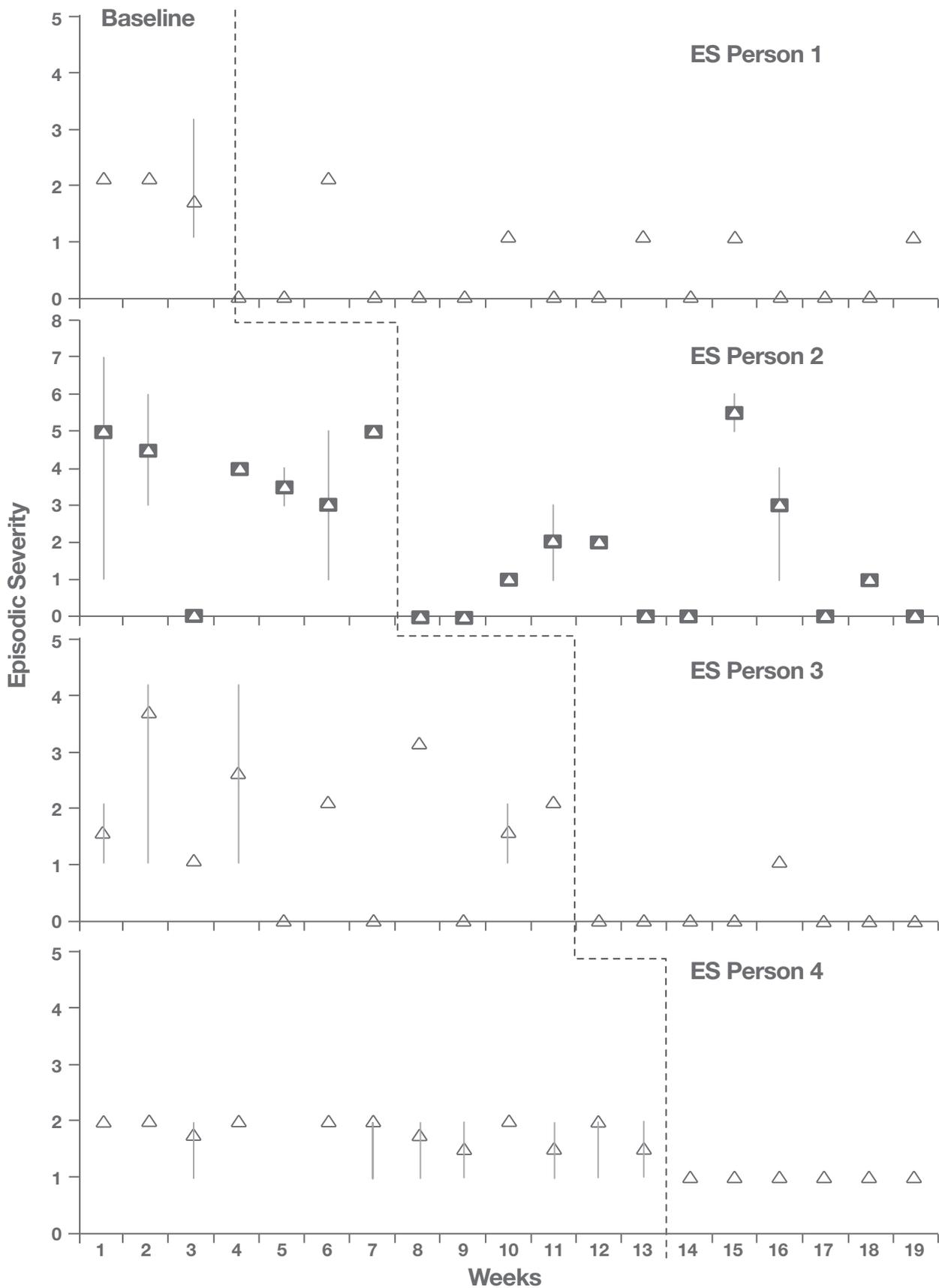
**Results**

The results of the impact of situational management on episodic severity (ES) for each person are summarised in *Figure 1*, below. *Figure 1* illustrates the average score for ES of incidents per week with the range of the scores per week (from 1 to 5 for Participants 1, 3 and 4 and from 1 to 7 for Participant 2), as recommended by Willis and LaVigna (2005a). A score of 0 for the week indicates no ES measure was recorded as no incidents occurred. A score of 1 reflects incidents in which no injury or damage occurred. The high average and range of ES for Participant 2 during intervention in weeks 15 and 16 was due to staff not following the situational management strategy.

A highly important result is the average occurrence scores of ES during the baseline and situational management phase, as shown in *Table 2*. A measure of the effectiveness of the situational management strategies in minimising the ES is the average occurrence scores approaching 1.

Although not a primary measure for this study, it is also relevant to report the average weekly frequency of occurrence of the target behaviours during the baseline and support phases. Aggression during baseline for P1 occurred an average of 3 times a week and during the support phase, an average of 0.5 times a week. Property damage during baseline for P2 occurred an average of 1.6 times a week and during the support phase, an average of 0.9 times a week. Aggression during baseline for P3 occurred an average of 2.2 times a week and during the support phase, an average of 0.1 times a week. Finally, self injury during baseline for P4 occurred 16.6 times a week and during the support phase, an average of 8.7 times a week.

**Figure 1:** Episodic severity outcomes



**Table 2:** Episodic severity occurrence average

Participant #	Baseline average occurrence of ES	Intervention average occurrence of ES	Baseline highest recorded ES	Intervention highest recorded ES
1	1.8	1.2	3	2
2	4.2	2.4	7	6
3	2.1	1	4	1
4	1.8	1	2	1

## Discussion

The sole purpose of a situational management strategy is to safely bring the behaviour under control (LaVigna and Willis, 2005b). To safely bring the behaviour under control requires strategies that impact on the episodic severity (ES) of the incident. The results of this study indicate that the situational management procedures proposed by LaVigna and Willis (2002) and Willis and LaVigna (2004) produced decreases in ES across the participants in the study as compared to baseline ES.

The study has limitations. First, there were only a small number of participants. Further research with more participants is required before we can draw any meaningful conclusions in regard to the effect of situational management on ES. Second, the study was based on fieldwork; it was limited to permanent products records from a field-based intervention. The design did not allow for potential confounding effects such as no controls over experimenter bias. Third, we did not analyse the impact of an individual situational management strategy on the ES. This analysis would be an interesting area of further research.

One consideration highlighted by the results of this study was the magnitude of effect of the situational management strategies on ES. It would be useful to compare this effect (situational effects) with magnitude of effect on ES in studies using restrictive procedures for situational management. Is magnitude of effect on

ES likely to be greater using non-aversive situational management strategies, as opposed to contingent use of restraint or seclusion, for example, with regard to side effects such as type I and II escalations (LaVigna and Willis 2005a)? This comparison may further support non-aversive situational management strategies as highly desirable while the proactive strategies are put in place to generate more long-term effects.

Another consideration was the magnitude of effect of each individual situational management strategy on ES. For example, Spicer and Crates (in press) have reported highly significant magnitude of effect on ES from the use of functional reactions (eg strategic capitulation) in situational management. One example of a question regarding non-functional situational management would be: does stimulus change have generalised effects of magnitude across settings, activities and people with magnitude being predictive of the novelty of the type of SC? That is, would a more dramatic stimulus change have greater magnitude of effect on the episodic severity of the incident?

Non-aversive situational management shows promise as an effective strategy to rapidly reduce ES. The study has shown that the effect is promising. Further research is required to determine the impact of this underutilised and under-researched strategy in the non-aversive situational management of challenging behaviour.

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