



# Dr. Geoff Potter's Clinical Corner

OVERVIEW OF VARIOUS  
BEHAVIOURAL TOPICS &  
INDUSTRY UPDATES

# THE SUBTYPES OF AUTOMATICALLY SELF-INJUROUS BEHAVIOUR

My first research was completed on Self Injurious Behaviour (SIB) as a component of my Masters course in 1990 evaluating the support of severe SIB. Since this time, a great body of literature has been published in the support of this complex behaviour. Below are my notes summarising the three subtypes of automatically reinforced self-injury. It is important that in dealing with automatically reinforced SIB, that you have good clinical supervision and support, and you are clear on what subtype you are dealing with. Never conduct a Functional Analysis without supervision from someone experienced in this specialised linear assessment method.

SIB is maintained by social consequences in most cases (e.g., by escape from instructional demands, attention, and preferred items). In approximately 20% to 25% of cases, SIB occurs independent of social consequences. In these cases, the term automatic reinforcement is used to describe this functional class of behaviour because it is assumed that the behaviour itself produces its own reinforcement (through unspecified processes, such as sensory stimulation). By its nature, automatically reinforced SIB poses unique support challenges because the maintaining reinforcer cannot be directly identified, nor is it directly controllable by the clinician in most cases.

Automatically reinforced SIB is typically assumed to be maintained by positive reinforcement (possibly sensory stimulation); however, it has been suggested that automatically reinforced SIB can also be maintained by negative reinforcement when the behaviour attenuates some aversive stimulation such as pain or discomfort. Although automatic negative reinforcement is sometimes hypothesised as maintaining SIB when there is a known medical condition associated with discomfort, the behavioural literature does not identify any studies that provide a conclusive empirical demonstration of SIB maintained by automatic negative reinforcement. In their large-scale epidemiological analysis, Iwata et al. (1994) hypothesised that of the 39 cases identified, that had automatically reinforced SIB, only two might have SIB maintained by automatic negative reinforcement. This was based on the observation that the two cases had allergic dermatological conditions and engaged in skin scratching.

It should be noted that painful medical conditions can increase SIB that is socially maintained, possibly by establishing certain stimuli as aversive (e.g., noise; O'Reilly, 1997). In light of the fact that there are only a few reported cases in which automatically reinforced SIB was hypothesised to be maintained by negative reinforcement, this remains more a theoretical possibility than an established empirical phenomenon.

Because automatically reinforced SIB occurs independently of social contingencies, it has been suggested that its maintaining variables are more biological in nature than those of socially reinforced SIB (Mace & Mauk, 1995). There is a body of research on the "biological bases" of SIB that has examined how SIB correlates with brain morphology (Duerden et al., 2014), skin nerve fibers (Symons et al., 2008), pain sensitivity (Symons, Harper, Shinde, Clary, & Bodfish, 2010), and biological or neurochemical mechanisms.

# THE SUBTYPES OF AUTOMATICALLY SELF-INJUROUS BEHAVIOUR CONT'D

In their large-scale epidemiological analysis describing FA outcomes with 152 individuals with SIB, Iwata et al. (1994) noted two outcomes indicative of automatic reinforcement during a multielement FA. First, the rates of SIB are inversely related to the level of stimulation present in each condition of the FA. That is, SIB is highest or occurs exclusively in the alone (or no interaction) condition and is lowest in the play condition, in which toys and attention are available. The other pattern that indicates automatic reinforcement is when SIB occurs across all conditions of the functional analysis.

Another relevant behavioural feature present in some individuals with automatically reinforced SIB is self-restraint, which refers to behaviour that is topographically incompatible with or prevents SIB. One explanation is that SIB may produce both reinforcing and aversive consequences, and self-restraint occurs to avoid or escape the aversive consequences SIB produces. When an FA of SIB is conducted, if self-restraint occurs to the exclusion of SIB, it may not be possible to identify the function of SIB.

Automatically reinforced SIB consists of three subtypes based on distinct patterns of responding exhibited during the FA along with the presence or absence of self-restraint. These response pattern subtypes will reflect the functional properties of automatically reinforced SIB. Two patterns of responding considered in the literature to be indicative of automatic reinforcement in the context of a multielement FA:

- (a) one in which levels of SIB are highest in the alone condition and lowest in the play condition;
- (b) another in which levels of SIB are high (and sometimes variable) across all conditions.

In the former pattern (a), SIB is sensitive to the level of environmental stimulation provided during an FA (Subtype 1), whereas in the latter (b), SIB shows little sensitivity to the environmental manipulations implemented during an FA (Subtype 2).

These differences in behavioural sensitivity in the context of the FA could stem from differences in the potency or type of reinforcing consequences that SIB produces relative to other reinforcers in the environment. For example, the play condition of an FA typically includes highly preferred toys or leisure materials that are freely available to the participant, and allocation of responding to SIB often indicates a preference for reinforcement automatically produced by SIB over reinforcement produced by interacting with the toys or leisure items.

The presence of self-restraint is the basis for the third subtype (Subtype 3). Researchers have hypothesised that this response is typically maintained by negative reinforcement, suggesting that SIB produces aversive consequences (e.g., pain) for these individuals. Therefore, for Subtype 3, SIB may produce reinforcing consequences by one mechanism (e.g., positive sensory stimulation) and aversive consequences by another (e.g., pain when the individual's targeted tissue is bruised and sensitive). Subtype 3 is very difficult to ameliorate.

# THE SUBTYPES OF AUTOMATICALLY SELF-INJUROUS BEHAVIOUR CONT'D

BASED ON:

*LOUIS P. HAGOPIAN, GRIFFIN W. ROOKER, AND JENNIFER R. ZARCONE; DELINEATING SUBTYPES OF SELF-INJURIOUS BEHAVIOR MAINTAINED BY AUTOMATIC REINFORCEMENT; JOURNAL OF APPLIED BEHAVIOR ANALYSIS 2015, 48, 523–543*

*CARA L. PHILLIPS, JULIA A. IANNACONE, GRIFFIN W. ROOKER AND LOUIS P. HAGOPIAN; NONCONTINGENT REINFORCEMENT FOR THE TREATMENT OF SEVERE PROBLEM BEHAVIOR: AN ANALYSIS OF 27 CONSECUTIVE APPLICATIONS; JOURNAL OF APPLIED BEHAVIOR ANALYSIS 2017, 50, 357–376*