

A theoretical analysis of potential extinction properties of behavior-specific manual restraint

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This paper will examine possible extinction properties of behavior-specific manual restraint. It will analyze the possibility of extinction being produced via restraint with respect to the target behavior's possible environmental functions. The theoretical analysis will involve the analysis of behavioral properties of restraint during two temporal periods: (1) during the restraint itself and (2) subsequent to the restraint.

Keywords: manual restraint, target behavior function, socially mediated access, socially mediated escape direct access, replacement behavior.

The use of manual restraint procedures is a controversial and endemic topic for personnel working with clients in residential and day treatment programs, schools, inpatient units and community settings. Manual restraint involves physically containing a client or student, without mechanical devices, in a position where movement of the arms, legs, and/or body becomes improbable. Manual restraint can be authorized for use in some facilities and school programs when a client exhibits behaviors that are considered to be dangerous (Harris, 1996) and thereby constitute a behavioral crisis or emergency (as found in California Positive Behavioral Intervention Regulations, Education Code Section 3052). When emergency restraint is deployed, its application is deemed *clinically necessary* by designated staff members to prevent an impending (or curtail a currently existing) dangerous situation. Behaviors such as self-injury and aggression towards people or property, which appear to threaten the welfare of the client or others, can be considered to constitute such an emergency. A decision is made "on the spot" to deploy restraint procedures by such designated persons.

While the use of emergency restraint is often justified as a mechanism to assure the safety of the client and persons in the immediate vicinity, its effects on client behavior are inevitable. What treatment effects accrue from emergency restraint has not received sufficient research attention, with the results of one study showing differential results between the two subjects (Luiselli, Kane, Treml, & Young, 2000). Due to the subjective nature of emergency restraint, its deployment for specific target behaviors may be haphazard and submit an intermittent contingency for target behavior problems. Research studies have demonstrated that the effects of intermittent schedules of a punishing stimulus may not result in significant changes in behavior when compared to a continuous schedule or more dense schedule (Cipani, Brendlinger, McDowell, & Usher, 1991; Clark, Rowbury, Baer, & Baer, 1973). Without evaluating whether punishing effects can result from emergency implementation of restraint, untoward results may occur. Emergency restraint can certainly be justified as a safety procedure. However, failing to understand its functional effects while using it may result in an exacerbation of problem behavior, thus necessitating restraint more frequently.

While the treatment effects of emergency restraint are not sufficiently understood, the behavioral effects of behavior-specific restraint across several topographies of problem behavior have been demonstrated (Bitgood, Crowe, Suarez, & Peters, 1980; Cipani & Wolter, 1983; Luiselli et al., 2000; Grace, et al., 1994; Matson & Keyes, 1988; Rapoff, Altman, & Christopherson, 1980; Rolider, Williams, Cummings, & VanHouten, 1991). For example, a client with mental retardation who engaged in self-injury was effectively treated by immobilizing his arms (i.e., on the table he was seated at) as a contingency for hits to his head (Cipani & Wolter, 1983). In another study, a 30-second restraint contingent upon self-hitting reduced such behavior to zero levels for a two month period of treatment (Rapoff, et al., 1980).

The effectiveness of behavior-specific restraint is often assessed in combination with other treatment components. A contingent manual restraint was used as one component of a treatment strategy for four clients with severe problem behaviors (Fisher, Piazza, Cataldo, Harrell, Jefferson & Connor, 1993). Functional communication training (FCT) was initially rendered as the treatment strategy, which reduced the level of problem behaviors. However, a clinically significant reduction was not achieved until a manual restraint component (30 second baskethold) was introduced. Another study examined the relative effectiveness of FCT against FCT plus brief restraint (Hanley, Piazza, Fisher & Maglieri, 2005). The FCT alone was found to produce a moderate decrement in self-injury maintained by attention. However, when brief restraint was added to the treatment package, clinically significant gains to near zero levels across the experimental condition were obtained.

An 11-year old male student who engaged in problem behaviors to escape task demands served as the subject for a study examining the contribution of restraint in treating such a function (Grace, Kahng, & Fisher, 1994). This student engaged in both mild destructive behaviors (e.g., pushing) and severe destructive behaviors (e.g., throwing furniture). Following a baseline, he was initially treated with FCT. This treatment strategy generated a decrement in such behaviors but did not clinically significant effects (rate was still almost one per minute). When a 3-minute baskethold restraint was added to FCT, the rates for both mild and severe forms of destructive behavior were reduced to a mean of 0.1 and 0.4 per minute.

Was the production of a significant effect via the addition of the baskethold restraint obtained because of the stimulus properties of the baskethold restraint itself? Or was the earlier functional form of escape from the task thwarted somewhat with the use of restraint (e.g., instead of leaving the area completely for a more lengthy period of time)? While behavior-specific manual restraint can produce a change in the target behavior, the mechanism by which such a contingency exerts its effect (and under what conditions) is less understood.

How does behavior-specific restraint work when demonstrated to be effective in a given application? This paper will first examine two contingency operations (stimulus presentation punishment and extinction) that take place when behavior-specific restraint is enacted. Following this brief presentation, the remainder of the paper will examine whether restraint might be capable of producing extinction under two temporal events: (a) during the restraint and (b) subsequent to the restraint.

How can behavior-specific manual restraint produce a treatment effect?

When manual restraint results in a change in the behavior that produces such a consequence, the treatment effect is often attributed to the actual physical restraint procedure that produces a restriction of the client's movement. Many people subjectively evaluate such a contingent procedure as "aversive." Therefore, people assume that manual restraint functions as a positive punisher in its ability (in a given case) to act as an aversive stimulus presentation. In the previously cited studies (Bitgood, et.al., 1980; Cipani & Wolter, 1983; Luiselli et. al., 2000; Grace, et al., 1994; Matson & Keyes, 1988; Rapoff, et.al., 1980; Rolider, et.al., 1991), many people would assume that the stimulus presentation effect of manual restraint served to produce the decrement in target behaviors.

However, contingent manual restraint in all these studies also produced a withdrawal and withholding of events and stimuli upon being enacted. When the client is being manually restrained, the stimulus conditions that were in effect terminate for the period of time the restraint is in effect. Further, events that might have occurred had the restraint not been effected are postponed. If an application of manual restraint results in the withholding of impending events that were maintaining the target behavior, the restraint may be more powerful in its ability to temporarily postpone functional reinforcers of the target behavior. The above studies simply demonstrated that the restraint procedure was effective, either in isolation (Bitgood, et al., 1980) or when added to other procedures (Fisher, et al., 1993). It would

prove difficult to experimentally isolate stimulus presentation punishment effects from extinction effects with behavior-specific restraint when conducting a “demonstration of effect” study.

Hence, what is unknown in any clinical case demonstrating an effect with manual restraint is what behavioral property was primarily responsible for the change in the target behavior. However, what is known about positive punishment effects may help in uncovering possible differential effects post hoc. Contingent aversive stimuli may not sustain their stimulus presentation punishment properties due to a number of factors such as habituation of unconditioned reinforcers (Murphy & McSweeney, 2003; Holz & Azrin, 1962) and less than optimal values for parameters that produce an aversive condition (Azrin, Holz & Hake, 1963; Azrin & Holz, 1966; Lerman & Vorndran, 2002). If habituation occurs in a particular case, restraint may lose its punishing effect if the restraint does not also entail a removal of the functional reinforcer for the problem behavior. Therefore, to rely solely on restraint’s possible stimulus presentation effects may not be a sound clinical decision in the long term.

If the stimulus presentation properties of restraint are either non-existent or erode over time, certainly procedures that make restraint less necessary are welcomed (Luiselli, Pace & Dunn, 2006). Additionally, to assess the potential for a given application of behavior-specific restraint to produce extinction by removing the functional reinforcer would also be of significant diagnostic utility in the decision to deploy behavior-specific restraint. An analysis of the environmental function of the target behavior may provide a means for an a priori analysis of potential extinction effects. Under some contexts, restraint may delay access to the maintaining reinforcer for the length of time the restraint is in effect. In those contexts, extinction would be effected. In other circumstances, behavior-specific restraint may terminate or withhold environmental events that already serve as motivational conditions for escape behaviors. In those circumstances, restraint may function to exacerbate and increase the problem behaviors that produce it via negative reinforcement. Subsequently, restraint used in these contexts would produce treatment effects only as a result of its stimulus presentation properties. In that scenario, the long term utility of restraint would be subject to the limitations delineated previously.

To examine the possibility of extinction being in effect when a behavior-specific restraint is deployed would require an understanding of the target behavior’s function. Analysis of behavioral function has been the subject of many studies (Carr, 1977; Iwata, Dorsey, Slifer, Bauman, & Richman, 1982; Iwata, Pace, Dorsey, Zarcone, Vollmer, Smith, Rodgers, Lerman, Shore, Mazeleski, Goh, Cowdery, Kalsher, McCosh, & Willis, 1994). This paper will review the potential for extinction effects with behavior-specific restraint with the following functional categories (Cipani, 1994, Cipani & Schock, 2007): (1) socially mediated access to positive reinforcement (SMA), (2) socially mediated escape/avoidance of negative reinforcement (SME), (3) direct access to positive reinforcement (DA) also known as automatic positive reinforcement and, (4) direct escape/avoidance of negative reinforcement (DE) also known as automatic negative reinforcement.

The function of a target behavior (e.g., SMA, SME, DA, or DE) does not affect the potency of punishing stimuli from the perspective of positive punishment (i.e., stimulus presentation). Hence, the remainder of this paper will not address this potential property of consequent stimuli since function is irrelevant to its potency. However, the same is not true for possible extinction effects accruing from behavior-specific restraint. Therefore, an examination of the environmental function of problem behavior from each of the above four diagnostic categories will be analyzed with respect to the potential to remove the functional reinforcer. This theoretical analysis will be done for two temporal periods: (1) the time period during the restraint and (2) the time period following the restraint.

Functional Properties During the Restraint

SMA functions

Can manual restraint produce an extinction condition for problem behavior serving a SMA function? By examining the effect a restraint procedure has on the availability of the maintaining reinforcer (i.e., while the client is being restrained), one may be able to view whether extinction will prevail during the period of the restraint. In all these examples, let's assume the manual restraint is effective in immobilizing the client and therefore precludes access to tangible items during the restraint period.

Examine the case of a hypothetical client who hits himself with some daily frequency while at home after his day program. A functional assessment reveals that such behavior intermittently results in staff letting him go outside for awhile to play on the swings. Such access to outside activities is the maintaining contingency, with other behaviors very unlikely to produce such an event. When manual restraint is not in effect, the self-injury continues well after the first strike. Additionally, other more dangerous forms of self-injury may be progressively shaped by staff under the condition of non-restraint of self-injury (e.g., hitting self with an object). If the client is left unabated, the form and frequency of self-injury may change to a more undesirable intensity and frequency. It is also plausible that other behavioral topographies emerge (e.g. property destruction, aggression to others with instruments). This may create an even more dangerous circumstance to the client, staff and other clients.

If a contingent restraint is deployed for the client hitting himself on the first strike (or better yet, for attempts), what are the behavioral phenomena that result? Unquestionably, the client's ability to get outside is postponed for the length of the restraint. As long as the restraint is underway, access to all other events (including going outside) is postponed. The previous maintaining contingency (i.e., swing access) is therefore removed, at least temporarily, as a result of the restraint. Therefore, the initial behavioral function of self-injury would now be one of delaying access to outside activities for some period. Therefore, contingent manual restraint in this scenario would certainly produce an extinction condition by withdrawing the availability of going outside while the restraint is in effect. Of course, what happens after the restraint can be more important as further analysis in this paper will illustrate.

What if self-injury, or another SMA problem behavior, produces attention? What form of attention is paired with the restraint may be the key to insuring that the restraint procedure does not encumber the special delivery of the functional reinforcer. In the Hanley et al. (2005) study cited above, adding restraint to FCT produced clinically significant gains in clients whose self-injury was attention maintained. Does this procedure not set up a competing reinforcement context? Given their effects, the form of attention derived from their restraint procedure would not seem to have produced the desired form of attention. If self-injury was previously maintained by staff comments ("please don't hurt yourself") and/or physical touching of the client on the back and shoulders, would contingent restraint provide an FR1 schedule of such? The form of the restraint would have to be different (no verbal interaction and lack of a back rub) than the previously maintaining reinforcer. With a restraint that does not entail those staff responses, we would contend that the restraint procedure does not provide an adaptive behavior chain for the functional reinforcer. With regard to SMA behaviors involving attention as the functional reinforcer, extinction effects depend on how well the restraint procedure avoids encumbering the form of attention desired by the client.

SME functions

Does the use of manual restraint for SME problem behaviors entail extinction during the period of the restraint? Consider a hypothetical client's self injury that is currently serving an escape function that is mediated by staff. A client hits himself, with such behavior eventually resulting in staff terminating

the 1-1 language task/instruction, for a short period of time. Such termination of language instruction is the maintaining contingency for this person's self-injury. When manual restraint is not in effect, the self-injury continues well after the first strike. Additionally, other more dangerous forms of self-injury may be progressively shaped by staff attempting to ignore or "work through" less severe forms of self-injury. Subsequently, as the intensity and severity of the self-injury exacerbate, staff then terminate the training session. Hence, the occurrence of these more dangerous forms of self-injury (e.g., hitting self with an object) may become strengthened.

When manual restraint is in effect, termination of the activity occurs. In contrast to a non-restraint condition, the termination of the language instruction occurs with the first strike. Hence the repeated blows to the body will be subverted by the manual restraint. Therefore, self-injury will be put on an FR1 schedule of escape, in contrast to a leaner schedule of escape that previously existed. Hence, bursts of self-injury should be eliminated with behavior-specific restraint. The disappointing part of the analysis is that an initial occurrence of self-injury will be successful in terminating instruction for the period of time of the restraint. As a result, the future probability of these first hits will be heightened under sufficient motivative conditions. In this case, restraint will function as a punishment contingency only from its ability to comprise an aversive stimulus presentation to the individual client. This analysis seems to mandate that the sole deployment of behavior-specific manual restraint may help in ameliorating the intensity of escape episodes. Whether it entails extinction properties depends on what specific aversive condition was being terminated via the target behavior.

DA functions

Direct access functions involve behavior that produces their effect directly on the physical (nonsocial) environment. This category can include what is commonly referred to as sensory reinforced behaviors as well as behaviors that produce a tangible reinforcer directly (i.e., going to the cupboard and getting a cookie when hungry). Can behavior-specific manual restraint produce an extinction condition when the target behavior contacts positive reinforcement directly? In a study with five subjects with profound mental retardation, a functional analysis revealed that the self-injury's (SIB) function was non-social (Lerman, Iwata, Shore, & DeLeon, 1997). Following a preference assessment, reinforcement based procedures (DRO, DRA and NCR) were developed for all five subjects. The subject was presented with an item that would hopefully compete with the automatic reinforcement produced by the self-injury. These interventions did not produce reductions in SIB below baseline for four out of the five subjects. With the implementation of a 15- or 30-second contingent restraint, self-injury was markedly reduced in all subjects. Was the treatment effect obtained when restraint was added due to its punishing properties and/or due to the removal of sensory reinforcement when the restraint occurred?

However, in a study on the effectiveness of response blocking, Lerman & Iwata (1996) designed an experimental methodology to test the relative punishment potency of the blocking procedure versus the extinction of sensory reinforcement with the eye-poking behavior of a 32 year old man diagnosed with profound mental retardation. To determine what behavioral properties of contingent blocking were producing the effect, these authors examined different rates of sensory reinforcement on the eye poking behavior. If eye poking was blocked 50% of the time it was attempted, a sensory reinforcement schedule of FR2 was in effect. This study demonstrated that the effect of blocking for this individual was one of punishment. However, in a study on the same topographical form of problem behavior with a 41 year old female, extinction effects were demonstrated with the change in reinforcement schedule across several sequential conditions (e.g., response blocking of 50%, 67%, 80% and 100%). The authors' conclusion was that with some individuals, response blocking produces punishing effects, with others it produces extinction effects. This innovative methodology for experimentally testing the relative effects of stimulus presentation versus extinction can have application for other functions as well, e.g., SMA, SME, DE.

DE functions

Can behavior-specific manual restraint produce an extinction condition when the target behavior terminates the undesired condition directly? Behavior-specific restraint may or may not involve the removal of the antecedent aversive condition when it is effected. Take the case of a target client who runs out the door when another client screams and becomes aggressive to others in proximity. This client leaves the area in a hurried and unsafe manner, often pushing and/or knocking over clients who are in his way. Hence, the decision to physically prevent him from leaving the area (by restraining him) is made (not necessarily the wisest choice). If restraint is implemented in the same area as the tantrum, will it serve to maintain such a behavior? Let's assume for this individual that the noise generated by the tantrum produces a motivative condition for escape. A restraint that is physically preventing him from leaving the area would certainly not terminate the condition. Thus, one could envision that an extinction condition would be in effect. However, if the client is moved to another room (where the noise and commotion are ameliorated), the target behavior is now functional in escaping the aversive event. Such a procedure which would also be termed behavior-specific restraint would probably insure that such behavior will be very likely under the relevant antecedent conditions.

In a case study, a client who frequently self-restrained demonstrated no SIB in any of the four test conditions of a functional analysis except the demand condition (Smith, Lerman, & Iwata, 1996). In the demand condition she was required to remove her arms from the self-restraint, but was then allowed to self-restrain contingent upon SIB. Hence the elevated rate of behavior in this condition. The authors were unsure what the function of self-restraint was in this case, speculating that one possibility is the avoidance of task demands. Consider the obvious fact that self-restraint produces a condition that directly avoids any task engagement. Let's speculate that self-restraint in this particular case has a DE function.

The authors then conducted a comparison between access to self-restraint through self-injury versus no access to restraint. In one condition, the client was blocked in her attempts to self-restrain (blocking may be equated in this study with restraint). However, when she engaged in SIB, she was allowed to self-restrain for one minute. In the no-access to restraint condition, all attempts to self-restrain were blocked and the therapist also ignored SIB (i.e., no access to self-restraint). When SIB functioned to access the self-restraint, rates of SIB went up. When blocking attempts to self-restrain were combined with no contingent access to self-restraint, treatment effects were derived. If blocking actually produced an aversive stimulus condition, then punishment effects would have occurred in both experimental conditions (since it was inherent in both experimental conditions). However, when no access to self-restraint was imposed irrespective of behavior (i.e., withholding of direct access to self-restraint), treatment was effective. This study would seem to have demonstrated that the blocking contingency did not function as punishment.

Functional Properties Subsequent to the Restraint

SMA functions

For most SMA behavior problems (excluding some attention functions), the restraint withholds the maintaining reinforcer for the length of the restraint. What happens after the restraint will determine whether the contingent restraint will produce an effective contingency for the target behavior. For SMA behaviors, a decrement effect depends on whether the access to the desired positive reinforcer is quicker when restraint is enacted versus when restraint does not occur. For example, a 1 minute restraint is contingent upon aggressive behavior of a hypothetical client with severe developmental disabilities. The function of the self-injury was ascertained to gain access to desired items via intermittent staff provision of such. If the client gets the desired item within a minute of the restraint terminating, self-injury can produce desired reinforcement within a two minute time span. In comparison, observation of the contingencies when the client does not engage in self-injury indicate that the desired item is unavailable

for at least 15 minutes (when self-injury does not occur). Note how quickly the desired items are accessed after a restraint occurs relative to their access when self-injury does not occur. This differential ability of the client's self-injury in the hypothetical example to produce reinforcement quicker will enable the client's self-injury to remain functional, despite the temporary withdrawal of the maintaining reinforcer during the restraint period itself. Self-injury followed by manual restraint will therefore become a chain that is more efficient at getting the desired item than engaging in other behaviors.

It is therefore paramount that contingent restraint not provide a mechanism for quicker access to the desired reinforcer than what exists when restraint is not effected. If restraint is essential for reducing the duration of episodes of the target behavior, then an additional contingency may be needed to insure that restraint does not entail quicker access to the reinforcer. Treating the target behavior as a mand for undesired events and activities following the restraint (Cipani & Schock, 2007), as well as reinforcement based procedures resulting from functional analyses (Lindberg, Iwata, Roscoe, Worsdell, & Hanley, 2003; Piazza, Adelinis, Hanley, Goh, & Delia, 2000) would seem to enhance the probability of disabling the target behavior's function.

SME functions

The same theoretical analysis of function holds true for SME behaviors. If restraint is allowing quicker escape from undesired activities or events, in contrast to circumstances in effect when self-injury, aggression or property destruction does not occur, a treatment effect is highly unlikely. In a hypothetical example, a client's self-injury serves as an escape from task demands. A one-minute restraint is imposed as an initial contingency for any occurrence of self-injury during tasks. Staff are further instructed after the restraint to have the client correctly perform a short compliance set lasting one to two minutes. When compliance is obtained to this instructional sequence, the staff person terminates any further instructional demands for a period of time. Therefore, following self-injury, the removal of undesired task demands is at least two minutes away. Although this certainly looks like a contingency that should weaken the functional relationship between self-injury and restraint, the broader set of contingencies needs to be examined.

Suppose data collected reveals that the non-occurrence of self-injury results in task demands lasting a multiple of that before terminating the instructional session. Given that set of data, answer the following question: What behavioral chain is more successful in escaping task demands? Complying with the task demands in a continuous fashion, or engaging in self-injury? When the client's motivational condition is strong, it is apparent how self-injury and subsequent restraint will become a chain that is more efficient at terminating the aversive event. Engaging in the task demand for the requisite period of time for completion is far less efficient at escaping the negative reinforcer. Therefore, if restraint is effected, what happens after restraint for SME behavior problems is critical in producing a significant change in the target behavior. Recreating entirely, the prior stimulus conditions that were in effect would seem to mitigate against enabling the target behavior's function through restraint.

DA & DE functions

If self-injurious behavior is maintained by direct access to sensory reinforcement, the restraint process certainly results in the withholding of that for the period of the restraint. But will it occur subsequent to the restraint? As staff become more adept at disabling the relationship between the target behavior and automatically rendered sensory reinforcement, the deprivation with respect to this reinforcer will increase. If no other intervention is put into effect, it would seem that effectively restraining attempts to produce sensory reinforcement might exacerbate such behavior, by altering the motivational condition of the client to produce such reinforcement. Some clients develop greater stealth in engaging in such behavior. Others learn to become more resistive to staff restraint procedures. Restraint with sensory reinforced problem behaviors may not produce desired effects in the long term unless supplemented by procedures that procure alternate sources that match or approximate the currently obtained sensory

reinforcement (Piazza, Adelinis, Nanley, Goh, & Delia, 2000). Restraint with DA behavior problems that produce tangible items and events have the same requirements for the post restraint period as the SMA and SME functions delineated above.

The same analysis holds for target behaviors serving a DE function. The first author consulted with a facility who served a client who would scratch the inside of his thigh with a staple. Based on two occasions where he was sent to emergency for scratching his genitals and bleeding profusely, staff were instructed to prevent him from doing this to his thigh (physically if necessary). This client learned to go “hide” and engage in such a behavior. Hence the stealthy nature of the new chain of behaviors that directly results in scratching the leg (presumably until the itch is relieved). Restraining this client from doing this would not be effective unless a safe and more effective alternate form of terminating the itchy condition was found and developed in this client.

Summary

This paper examined possible extinction properties of behavior-specific manual restraint with respect to a target behavior’s possible environmental functions. The theoretical analysis involved the behavioral properties of restraint during two temporal periods: (1) during the restraint itself and (2) subsequent to the restraint. For SMA functions, restraint would usually provide extinction conditions (except with some forms of attention maintained behavior) while the restraint is operative. For self-injury and other problem behaviors that serve SME functions, restraint may or may not provide a removal of the escape contingency. The use of restraint would in all probability put the client’s behavior on a more dense schedule of escape (by providing such with first attempt), thus decelerating the intensity/duration of the episodes. For both SMA and SME functions, the conditions subsequent to the restraint should not enable the target behavior in producing the functional reinforcer more efficiently than had contingent restraint not occurred.

The theoretical analysis also revealed that particularly with DA sensory reinforcement functions, immediate manual restraint will probably ameliorate or eliminate such reinforcement. However, due to the nature of DA behaviors, the period subsequent to the restraint is more critical. Efforts to develop alternate forms of sensory reinforcement that are not prevented would seem to be essential to avoid the necessity of frequent restraining/blocking. With DA problem behaviors that produce a tangible reinforcer directly, restraint would certainly prohibit such during the period of the restraint. In regards to the period following the restraint, the analysis is the same as for SMA and SME problem behaviors. If the access to the tangible reinforcer occurs quicker when restraint is effected, that chain of behaviors (including getting restrained) will become functional and extinction will not be produced.

With DE functions, restraint may or may not produce extinction effects during its implementation, depending on whether the antecedent aversive stimulus condition is terminated by the restraint. However, behavior-specific restraint would place the target behavior on an FR 1 schedule. Hence, restraint (or chain interruption, response blocking) would seem to be a possible temporary intervention to reduce the severity/intensity of the problem, but need additional behavioral engineering efforts to solve the problem behavior. The long-term success of the restraint procedure heavily depends on the ability of the alternate replacement behavior to successfully produce an exact or facsimile form of withdrawal of the aversive stimulus.

While restraint is often viewed as a contingency that may decelerate behavior due to stimulus presentation punishment properties, this paper posed consideration of another behavioral property. In some cases, restraint may have more powerful extinction properties than stimulus presentation effects. It may expedite the development of replacement behaviors by eliminating or at least disabling the prior function of target problem behaviors. Its use in clinical application should not be summarily dismissed.

Rather, the technical and logistical skills and competencies of direct line staff as well as the technical skills of the engineering behavior analyst should be issues addressed when considering manual restraint.

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