



Perspectives of Parents regarding the Appropriateness of Physical Restraint Alone or in Conjunction with Sedative Techniques for Managing Challenging Pediatric Dental Behaviour

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Abstract

Purpose: A retrospective look at parents' responses to having witnessed their children of varying levels of apprehension undergo sedative treatment visits across a 35 year period. Sedation visits with outcomes ranging from optimal or adequate, to inadequate and over-dosage, were assessed by both parents and their clinician.

Methods: After witnessing their child's visits, parents were asked if they would choose sedation for future visits under circumstances where outcomes cited need for persistent application of restraints vs more favorable outcomes. Post-treatment surveys of over 4,360 parents were conducted at the time of discharge after observing their children's responses to oral sedation visits in a private practice setting. Variable dosing of Chloral hydrate-Hydroxyzine with and without Meperidine, and Midazolam with and without Meperidine were compared.

Results: Not surprisingly, for parents where sedation was rated inadequate, 95% indicated they would likely opt for alternative modalities rather than subject their children to measures which ultimately necessitated persistent applications of restraint. Under circumstances where outcomes enabled treatment objectives to be accomplished without any form of restraint,

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parents correspondingly indicated they would have no reservation in accepting a pharmacological modality for future visits. Where transient application of physical restraint was needed to overcome minimally, moderately, or severely interfering behaviors, reactions were mixed among parents while clearly leaning in the direction of finding sedation desirable. Parents observing less than adequate success of sedation indicated they would consent to using sedation procedures for future visits only if it meant avoiding use of general anesthesia. Conclusion: Perceptions of parents where persistent application of restraints were needed found their use neither acceptable, appropriate nor desirable. There appears to be a trend in this direction amongst clinicians of today but in lieu of current practices which make little or no use of sedative modalities, this appears by no means universal.

Keywords

Sedation; Restraint; Parental Perspectives; Pediatric Dental Behaviour

Introduction

The behavioral management arsenal of pediatric dentists for management of challenging child dental behaviors is both diverse and somewhat controversial. Techniques range from conventional communication strategies to non-mainstream application of various pharmacological pathways with and without adjunctive need for physical restraint. Comfort levels of practitioners making best use of such techniques is highly variable and not uncommonly lacks general consensus as to what constitutes clinical success or the most appropriate use of any given technique. The utilization of restraint is not uncommon in the US when pharmacologic strategies fail to obtund interfering patient movement.

As a pediatric specialist with over forty five years' experience in both academic and private practice settings, a wide range in both colleague and parental interpretations and assessments of the appropriateness and acceptance of various behavioral guidance techniques have evolved. The adage that "the times they have a changed" as parenting practices and preferences have evolved in many directions would ordinarily be an accurate assessment. The diversification with which child rearing practices have changed and dentist perceptions of what strategies and techniques are best suited to manage the range of challenging child behaviors in a dental setting might surprise some parents and clinicians. While some have little or no difficulty with restraint being employed to enable treatment objectives to be accomplished, others detest the application of restraint. Similarly, there are parents reticent or refractory to the use of pharmacologic strategies for either sedative management or unconsciousness. Clinicians have been shown to display similar divergence based on their training and clinical practice.

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In one's earliest stages of dental training philosophical beliefs in how children should be treated were somewhat simplistic, if not forgiving or lacking an alternative. If believed capable of cooperation, children were expected to respond to authoritarian demands for acceptable behavior when confronting the introduction of dental treatment. Those with a limited range of coping skills were met essentially with what has been described as aversive measures, the use of voice control, verbal sanction, and as needed physical restraint to deliver care. Almost invariably, every undergraduate dental student can recall their initial pediatric clinic experiences when first exposed to children incapable or unwilling to readily permit treatment. At this level, use of pharmacological techniques were unavailable and both student and faculty not uncommonly found themselves resorting to aversive techniques to get through the experience. These experiences did not likely endear most pre-doctoral students to seek further pediatric experience, let alone advanced pediatric training. Vivid memories of parents citing their own early and unpleasant childhood recollections still haunts many adults today. Avoidance of care for many adults for reasons related to how they were treated as children remains commonplace.

As diversity of training experiences began to involve more sophisticated if not more gentle and child-oriented behavioral management strategies, demands for evidence-based support for the viability and safety of management techniques have been made.

Use of pharmacological strategies were reserved for practitioners with advanced training despite limited evidence-based support for their efficacy and safety [1]. The mid 80's saw the development of guidelines to address patient safety for which compliance enforcement does not appear to have materialized without the occurrence of mishaps and adverse reactions. Adverse non-pharmacological methods received scrutiny and in some instances revocation (use of hand-over-mouth). Today, use of physical restraint (referred with affection as "protective stabilization") is deployed in an effort to control or overcome interfering patient movement when both communication and pharmacological techniques prove inappropriate or inadequate. Under circumstances where general anesthesia is unacceptable to parents, the option of restraint surfaces acceptably for many as a necessary intervention and modality. The focus of this study was to ascertain parental perspectives as to the viability and appropriateness of using physical restraint to compensate for sedation inadequacy. Parents were surveyed to share their perceptions of the safety and effectiveness of sedative techniques and when inadequate, whether they would consider accepting sedative approaches for future visits.

This manuscript represents the third paper resulting from a longitudinal study of the retrospective responses of young uncooperative pediatric patients to varying dosages of commonly selected medication regimens manifesting variable levels of anxiety [2,3].

Background

Review of several well-known and respected researchers' articles on parental attitudes toward various behavior management techniques for fearful and uncooperative children consistently report greater acceptance of procedures which incorporate communication strategies, positive reinforcement, and modeling approaches. Alternatively, consensus appears to exist for some but not all to the opposite extreme with respect to techniques which involve adverse approaches such as voice control, use of papoose board and dentist/parental restraint when mainstream communication strategies either fail or prove inadequate or inappropriate to manage difficult behavior.

The range for which acceptability and endorsement occurs when left with the alternatives of application of physical restraint, elevating dosages of sedative agents, or resorting to unconscious techniques is widely subjective amongst parents and clinicians. There are those who under all circumstances reject use of general anesthesia. Use of restraint for this grouping has capacity to serve an acceptable alternative; those with fear or reticence of encountering sedative techniques and induction of potentially excessive levels of sedation, seem comfortable with the use of physical restraint. Still others, this author included, choose not to make use of physical restraint or its devices and rely heavily on careful and vigilant agent and dosage selection to overcome disruptive interfering behaviors.

Practitioner variability with respect to the use of sedative techniques remains wide. The two studies reported identify dosage ranges collectively for their combinations which were shown to manifest relatively high percentages of clinical success with either minimal or no need for restraint on children of varying levels of resistance [2,3]. Focus is directed at the perspectives of parents whose children fit these two outcomes in contrast to those where persistent restraint was needed.

Training experience of clinicians ranges from extensive success to far short of optimal. Those entertaining frequent success can be expected to have lower expectations for a need for adjunctive restraint. For those with a history of limited or no clinical sedation success, greater reliance on restraint or unconscious techniques prevails. The question asked in this study, however, focused on how parents regard the use of restraint when other modalities fall short of permitting treatment objectives to be accomplished.

Venham, et al., (1979) reported that child rearing and personality factors strongly influenced children's responses to dental stress and their acquisition of coping skills [4]. More gentle and child friendly approaches were warranted over adverse measures to enable children to better cope with dental stress.

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Murphy, MG, et al., 1984 (5) explored various behavior management techniques for those which were used successfully and those which were judged unsuccessful [5]. The extent of urgency and degree of difficulty played a significant role when determining the appropriateness of a given modality. They reported that many factors should be assessed. The type of behavior being confronted, the level of anxiety encountered, and the perceived harshness of the planned treatment were amongst those considered most important. Parents found many techniques undesirable and some desirable. Most objected to included use of restraint devices. General anesthesia and sedation were perceived by most to be acceptable.

Lawrence, McTigue, et al., compared parental perspectives regarding techniques that were explained in detail to parents in advance vs those that received no explanation prior to use [6]. Not surprisingly, parents were found to be more forgiving for the downsides of a given technique for which full explanation was presented in advance.

Casamassimo, et al., (7) reported that 88% of those surveyed felt parenting styles had changed negatively during their practice careers, that events were worsened for practitioners [7]. What was once considered general acceptance of the judgment of clinicians for how to best treat children was lessening in favor of parents' perceptions and preferences.

Desai, et al., surveyed 300 parents, divided into three groups on the basis of their children's age [8]. Communication strategies (TSD), positive reinforcement, and modeling were most well received; aversive techniques such as HOM was rejected and voice control judged least acceptable.

Vargas KG, Nathan JE, Qian F and Kupietsky A, 2007 (9) surveyed members of the AAPD to ascertain their characterizations of their own management style and how the need for physical restraint to complete treatment when sedation is used determines clinical success. 55% indicated an authoritarian style of management. 67% indicated that the need to employ restraints when using sedation did not necessarily indicate that sedation is inadequate or unacceptable. When asked if a sedation outcome could be defined as successful, agreement dropped to 47%. When defined as optimal, respondents' agreement was further reduced to 36%. The authors concluded that management style and the use of restraint significantly influence how a dentist defines a successful sedation. The extent to which restraint becomes needed for managing varying levels of fear and interfering behavior has never been addressed till recent studies [2,3].

Rodriquez, VBM, Costa, L, and Faria, P 2020 (10) compared responses of 167 parents with ten participating pediatric dentists [9,10]. Both parents and dentists were largely satisfied with the effectiveness of the sedations regardless of the need for restraints. Little detail is provided to identify the agents studies, dosing, or levels of anxiety from sedation subjects.

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The first components of the two longitudinal and retrospective studies by this author 2,3 determined optimal vs adequate success vs inadequate success and overdosage with respect to efficacy. The second component focused on safety. The third component, the focus of this manuscript, was to examine the observations of parents and are reported below. It included parents perceptions as to their future expectations when choosing a sedative modality for future visits based on the need for various levels of restraint of their child.

Methods

Over a 35 year period, data was collected from sedation logs for care provided to over 4,300 children ages 3-7 yrs of age where oral sedation was utilized in a private practice setting. Participants were selected on the basis of previous negative, unpleasant experiences and contemporary interfering behavior. The use of pharmacological strategies were presented as favorable with intent to ameliorate or eliminate the need for physical restraint or as an alternative to the use of unconscious (general anesthesia) techniques. Application of restraint deployed in the study occurred primarily from a hands on approach of dental auxiliaries with and without parents. On rare occasions, immobilization via head, upper and /or lower body and extremity constraint was accomplished by a papoose board or pedi-wrap. Pre-treatment discussions with parents identified options which may come into play, their rationale, and whether or not the parent preferred to be included or excluded. Informed consent was universally secured; when behavioral cooperation deteriorated, parental input was sought to determine the viability of continuing treatment efforts. For some, judgments were to persist to complete treatment. Where extensive treatment remained, both clinician and parent worked to decide whether to continue, or abort. The bottom line: Should the use of persistent physical restraint remain a viable modality when confronting interfering behavior for the neurologically normal child?

This study received institutional review board approval (14002002) by the University of Alabama, Birmingham.

At the conclusion of treatment at the time discharge criteria was satisfied, parents were asked to describe their impressions and future preferences for care. Parents were unaware of the conclusions of two independent evaluators as to how clinical success of the sedation visits were determined, or how they contrasted with their evaluation of merit for their child. There were no statistical differences between parental assessment and study evaluators where restraint of a persistent nature occurred.

Behavioral responses were rated as either needing no application of restraint (optimal), transient application (adequate), or persistent application of restraint to accomplish treatment (inadequate sedation), or over-dosage. Subjects were identified as mildly, moderately, or severely apprehensive. Variations in dosing of Midazolam with and without meperidine and Chloral hydrate with and without meperidine were evaluated.

Only medication regimens which manifested statistically significant outcomes were included in the analysis. Only the shaded regimens in (Tables 1-6) manifested such. It was believed that inclusion of regimens which produced inadequate sedations in the final tally would only serve to dilute parental impressions in the direction of how parents perceived the appropriateness and unacceptability of applying persistent restraint when sedations proved inadequate.

Results

92% of parents surveyed where persistent application of restraint was needed to permit rendering of treatment indicated they would likely opt for either an unconscious technique, or defer further treatment till which time maturation occurred sufficiently to permit treatment without pharmacological assistance.

Alternately, under circumstances where patient responses were judged Optimal, 95% of these parents expressed no reticence to make use of sedation for future visits. 5% remained undecided as to whether or not they were comfortable about using sedation techniques for their children.

Where transient need for restraint to accomplish treatment was reported, 63% indicated they were pleased to witness the accomplishment of treatment despite limited need for the application of restraint. 37% indicated they were somewhat unsure if they would pursue sedation for future visits.

When asked their thinking on such as response, half indicated they had higher expectations.

Parents reticent to make use of sedation for future visits reported having pre-conceived notions from things they read about catastrophic outcomes from dental sedative visits. These parents did indicate that discussion and explanation of what would take place were thorough, detailed, and not rushed. The quality of introduction and presentation of what consequences may be experienced was appreciated and comforting for most. For parents whose children were shown to necessitate persistent application of restraint, or signs of depressed consciousness, significantly lower levels of confidence were expressed.

Data below in (Tables 1-6) illustrate the relative therapeutic dosing success for all regimens [2,3]. Parental perspectives were derived from their observations for the shaded regimens* in

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which outcomes were found most effective. For regimens which produced the lowest percentages of therapeutic success, parental responses were discarded so as to minimize bias.

REGIMEN (mg/kg)	N=	% THERAPEUTIC SUCCESS			
		OPTIMAL	ADEQUATE	INADEQUATE	OVERDOSAGE
Midaz 0.3 mg/kg	50	22	18	60	0
Midaz 0.5 mg/kg	70	30	28	42	0
Midaz 0.7 mg/kg	70	35	32	33	0
Midaz 1.0 mg/kg	75	42	33	25	0
Midaz + Meper 0.5 mg/kg 1.0 mg/kg	75	33	40	27	0
* Midaz + Meper 0.7 mg/kg 1.0 mg/kg	75	48	45	7	0
* Midaz + Meper 1.0 mg/kg 1.0 mg/kg	75	63	32	5	0

* Recognized as providing greatest % of success for a given level of anxiety

Table 1: Comparisons of midazolam with and without meperidine for mild levels of apprehension.

REGIMEN (mg/kg)	N=	% THERAPEUTIC SUCCESS			
		OPTIMAL	ADEQUATE	INADEQUATE	OVERDOSAGE
Midaz 0.3 mg/kg	25	10	10	80	0
Midaz 0.5 mg/kg	50	11	11	78	0
Midaz 0.7 mg/kg	75	20	32	48	0
Midaz 1.0 mg/kg	75	32	28	40	0
Midaz + Meper 0.5 mg/kg + 1.0 mg/kg	75	15	18	67	0
*Midaz + Meper 0.7 mg/kg + 1.0 mg/kg	75	38	42	20	0
*Midaz + Meper 1.0 mg/kg + 1.0 mg/kg	75	52	34	14	0
Midaz + Meper 0.5 mg/kg + 1.5 mg/kg	70	17	25	58	0
*Midaz + Meper 0.7 mg/kg + 1.5 mg/kg	75	44	46	10	0
*Midaz + Meper 1.0 mg/kg + 1.5 mg/kg	75	58	36	6	0

*Recognized as providing greatest % of success for a given level of anxiety

Table 2: Comparisons of midazolam with and without meperidine for moderate levels of apprehension.

REGIMEN (mg/kg)	N=	% THERAPEUTIC SUCCESS			
		OPTIMAL	ADEQUATE	INADEQUATE	OVERDOSAGE
Midaz 0.5 mg/kg	25	5	4	91	0
Midaz 0.7 mg/kg	50	12	20	68	0
Midaz 1.0 mg/kg	75	24	30	46	0
Midaz 1.5 mg/kg	75	30	30	40	0
Midaz + Meper 0.5 mg/kg + 1.0 mg/kg	75	16	22	62	0
Midaz + Meper 0.7 mg/kg + 1.0 mg/kg	100	35	32	33	0
Midaz + Meper 1.0 mg/kg + 1.0 mg/kg	100	48	38	14	0
*Midaz + Meper 1.5 mg/kg + 1.0 mg/kg	75	52	34	12	2
*Midaz + Meper 1.5 mg/kg + 1.5 mg/kg	60	46	30	20	4
*Midaz + Meper 1.0 mg/kg + 2.0 mg/kg	70	46	28	24	2
*Midaz + Meper 1.5 mg/kg + 2.0 mg/kg	60	36	34	26	4

*Recognized as providing greatest % of success for a given level of anxiety

Table 3: Comparisons of midazolam with and without meperidine for severe levels of apprehension.

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The shaded areas of Tables 1-3 represent outcomes which were statistically significant, $P < 0.05$.

REGIMEN (mg/kg)	N=	% THERAPEUTIC SUCCESS			
		OPTIMAL	ADEQUATE	INADEQUATE	OVERDOSAGE
CH + Hydroxyzine 50 mg/kg 25mg	75	30	30	30	10
CH + Hydroxyzine 45 mg/kg 25 mg	75	42	24	30	4
CH + Hydroxyzine 40 mg/kg 25mg	80	44	26	28	2
*CH + Hydroxyzine 35 mg/kg 25mg	80	50	34	16	0
CH + Hydroxyzine 30 mg/kg 25mg	70	48	30	22	0
*CH + Hydroxyzine + Meperidine 50 mg/kg 25 mg 1.0 mg/kg	100	62	15	11	12
*CH + Hydroxyzine + Meperidine 45 mg/kg 25 mg 1.0 mg/kg	85	68	14	10	8
*CH + Hydroxyzine + Meperidine 40 mg/kg 25 mg 1.0 mg/kg	75	74	12	8	6
*CH + Hydroxyzine + Meperidine 35 mg/kg 25 mg 1.0 mg/kg	70	64	24	10	2
*CH + Hydroxyzine + Meperidine 30 mg/kg 25 mg 1.0 mg/kg	75	60	27	11	0
*CH + Hydroxyzine + Meperidine 25 mg/kg 25 mg 1.0 mg/kg	70	40	44	16	0
*Recognized as providing greatest % of success for a given level of anxiety					

Table 4: For mild levels of anxiety for chloral hydrate-hydroxyzine with and without meperidine.

REGIMEN (mg/kg)	N=	% THERAPEUTIC SUCCESS			
		OPTIMAL	ADEQUATE	INADEQUATE	OVERDOSAGE
CH + Hydroxyzine 50 mg/kg 25mg	75	30	22	42	6
CH + Hydroxyzine 45 mg/kg 25 mg	65	32	22	40	6
CH + Hydroxyzine 40 mg/kg 25mg	60	30	30	38	2
CH + Hydroxyzine 35 mg/kg 25mg	75	32	22	46	0
*CH + Hydroxyzine + Meperidine 40 mg/kg 25 mg 1.0 mg/kg	75	64	22	12	2
*CH + Hydroxyzine + Meperidine 35 mg/kg 25 mg 1.0 mg/kg	75	58	30	12	0
*CH + Hydroxyzine + Meperidine 30 mg/kg 25 mg 1.0 mg/kg	75	54	26	20	0
CH + Hydroxyzine + Meperidine 25 mg/kg 25 mg 1.0 mg/kg	60	46	24	30	0
*CH + Hydroxyzine + Meperidine 45 mg/kg 25 mg 1.5 mg/kg	75	60	30	8	2
*CH + Hydroxyzine + Meperidine 40 mg/kg 25 mg 1.5 mg/kg	75	68	25	7	0
*CH + Hydroxyzine + Meperidine 35 mg/kg 25 mg 1.5 mg/kg	75	65	28	7	0
*CH + Hydroxyzine + Meperidine 30 mg/kg 25 mg 1.5 mg/kg	75	60	22	18	0
*Recognized as providing greatest % of success for a given level of anxiety					

Table 5: For moderate levels of anxiety for chloral hydrate-hydroxyzine with or without meperidine.

REGIMEN (mg/kg)	N=	% THERAPEUTIC SUCCESS			
		OPTIMAL	ADEQUATE	INADEQUATE	OVERDOSAGE
CH + Hydroxyzine 50 mg/kg 25mg	60	22	30	46	2
CH + Hydroxyzine 45 mg/kg 25 mg	75	20	28	52	0
CH + Hydroxyzine 40 mg/kg 25mg	75	24	26	50	0
CH + Hydroxyzine 35 mg/kg 25mg	60	20	24	56	0
*CH + Hydroxyzine + Meperidine 50 mg/kg 25 mg 1.5 mg/kg	75	48	36	16	0
*CH + Hydroxyzine + Meperidine 45 mg/kg 25 mg 1.5 mg/kg	75	45	32	23	0
*CH + Hydroxyzine + Meperidine 40 mg/kg 25 mg 1.5 mg/kg	80	48	30	22	0
*CH + Hydroxyzine + Meperidine 35 mg/kg 25 mg 1.5 mg/kg	80	46	38	16	0
*CH + Hydroxyzine + Meperidine 50 mg/kg 25 mg 2.0 mg/kg	75	56	24	18	2
*CH + Hydroxyzine + Meperidine 45 mg/kg 25 mg 2.0 mg/kg	80	54	26	18	2
*CH + Hydroxyzine + Meperidine 40 mg/kg 25 mg 2.0 mg/kg	85	52	34	14	0
*CH + Hydroxyzine + Meperidine 35 mg/kg 25 mg 2.0 mg/kg	75	58	36	6	0
*CH + Hydroxyzine + Meperidine 30 mg/kg 25 mg 2.0 mg/kg	60	44	40	16	0
*Recognized as providing greatest % of success for a given level of anxiety					

Table 6: For severe levels of anxiety for mid-length and long duration visits (from 20-40 minutes and > 40 minutes) for chloral hydrate-hydroxyzine with and without meperidine.

Only the shaded areas of (Tables 1-6) represent statistically significant outcomes, ($P < 0.05$).

Parents were then asked which of the following best characterized the assessment of the sedation outcome of their child's visit? (Optimal = no need for restraint; Acceptable= only minimal or transient need for restraint; Inadequate= persistent need for restraint of interfering behavior; Over-dosage= excessive dosing rendering the patient with deeper than desired level of sedation or consciousness) Totals were averaged across all 4,300 sedation visits regardless of individual dosing and variation in anxiety level. An overall breakdown of responses across all sedation regimens revealed Optimal Responses at 38%, Acceptable responses at 29%, Inadequate at 31%, and over-dosage at 2%. As described above, it is important to understand

that for regimens which manifested predominantly poor outcomes, such data was excluded with emphasis in descriptive analysis on regimens which showed relative success. Selection therefore was limited to regimens showing only optimal (no need for restraint) and adequate (transient need for restraint).

Concerns regarding safety of sedative techniques and reported instances of catastrophic outcomes indeed are likely responsible to cause small numbers to show preference for an unconscious technique. Alternatively, some parents express tacit disapproval of the use of an unconscious (General Anesthesia) technique. This author cannot remember, however, when a parent has requested treatment where their child is restrained (against his/her will) to complete needed treatment, vs aborting treatment for another day or modality.

What transpires when a sedative method falls short of optimal or adequate to necessitate intervention (physical restraint) that becomes needed to permit completion of treatment objectives? If application of restraint in a transient manner becomes needed to complete minimal remaining treatment, what are the perceptions of both clinician and parent as to its appropriateness? Interestingly, 82% felt they had little or no difficulty with the transient need for restraint. Where persistent application of restraint however becomes necessary for significant remaining treatment, the decision becomes easier for both parent and clinician. Postponement or abortion becomes a logical alternative rather than forceful imposition of adverse measures. For the empathetic and compassionate clinician, use of restraint to this extent is likely to fall under the category of unacceptable or undesirable. That said, other priorities may come into play where persistence to complete treatment objectives prevail regardless of the impact on a child's psyche or expectations for cooperativeness at subsequent visits. In this vein, parent perspectives were projected as being direct and unabashed. One parent in this observer's recollection outspokenly was critical of the clinician's decision to abort treatment when profound deterioration in behavior resulted. Hypothetically, the goal of this parent to complete treatment may have been to avoid having to return for "round two". Alternately, there are experienced clinicians with a predilection (or the reverse) to make use of a sedative modality to complete treatment.

*What constitutes a reasonable percentage of success with regard to the extent to which persistent use of restraint is needed remains controversial. From a clinician's point of view, desirable success (combined optimal and adequate) was arbitrarily identified as 70% or greater. Nevertheless, only regimens which produced the highest incidence of optimal and adequate sedation (no need and only transient need for restraint) were included this study. Success rates of 80% or greater were considered highly desirable and 90% exceptional. It might be hypothesized that where success rates fell below 70%, parental preference for the use of sedation would diminish.

Discussion

Use of Restraint when Sedative Techniques fail to overcome resistive behaviour.

Unfortunately, literature that has more recently explored the issue asked in this study, i.e. parental impressions of the appropriateness of making use of persistent restraint when sedations prove inadequate has not been presented.

On the most forgiving and positive mindset, the use of restraint is not intended to be adverse for managing interfering behaviors. To the contrary, it has the tacit objective to permit quality dental care and prevent personal injury to the child and dental personnel. Whether used to circumvent mildly interfering behaviors or violent refractory and physically harmful responses, the clinician's obligations are to make use techniques which have received informed consent and the gentlest delivery without duress and injury to the psyche of all parties. Regretfully, accomplishing such is not as easily achieved.

In some instances, dental personnel participate in the application of restraint; in others, adjunctive devices are incorporated (protective wrappings, papoose boards, mouth props, head stabilizations). Often parental assistance in hand holding, upper or lower body immobilization is utilized. Such use should at no times be applied punitively. Any application need be safe, unrestrictive to safely permit patency of the airway and chest expansion. Unfortunately, use of physical restraint in today's applications not uncommonly compromise these demands in an effort to permit accomplishment of treatment objectives. It remains the opinion of this author that insufficient regard is given to making better use of pharmacologic agents and dosing to eliminate the need for restraint. Alternatively, there appears to be a paucity of well-designed study and scientific methodologies to clarify safer and more efficacious dosing of sedation regimens for children; as result, deterioration in child behaviors generate clinician frustration to accomplish treatment objectives over safety considerations. The two preliminary studies, however, identified favorable drug dosing regimens which manifested favorable outcomes that clinicians might consider making use of. By the same token, clearly inadequate responses were identified using alternative dosing that fell significantly lower than those proving to minimize or eliminate the need for restraint. Significant improvement was noted under conditions where narcotic (meperidine) was combined.

Parents reticent to make use of sedative techniques for future visits would consider their use if it were the only alternative to general anesthesia.

Parent perceptions of the appropriateness and acceptability of transient need for restraint were somewhat mixed, although the majority did not object to its use in this manner when compared to the need for persistent restraint.

When needed parents preference leaned strongly in the direction of selecting an alternate modality to persistent restraint. Among remaining choices, parents varied between the use of unconscious techniques or deferring treatment till the child's maturation and cooperative ability best permitted treatment. Where treatment needs were both extensive and urgent, the luxury of postponement was not a viable option for some.

The relative importance of completing treatment needs at the expense of needing persistent application of restraint while acceptable for some, was clearly found unacceptable by 75% of parents.

The literature reveals a diverse use of sedative techniques by pediatric dentists. National surveys of pediatric dentists reveal a paucity making successful use of sedative agents from their training and clinical practice. The regimens reported in this study are not universally used. A surprising number of training programs currently identify using only a restricted number of these agents being further limited to non-therapeutic dosing. Limited experience making use of a wide spectrum of agents and adequate dosing prohibits greater confidence in making use of more potent regimens and hence greater reliance on unconscious techniques or the use of physical restraint. Those accepting of restraint techniques without reservation to overcome interfering child behavior appear to be lessening.

Summary

At this stage, consensus among pediatric specialists regarding the use of sedative modalities in an effort to make dental treatment visits more pleasant and minimize or eliminate the need for physical restraint by enhancing child behavioral acceptance doesn't seem to be in place. Possible explanation likely includes variable training and clinical experience in the successful use of sedation for clinicians. For some, training experiences were particularly broad and extensive, making use of a variety of agents and dosing. For others, limited in both the range of agents permitted for use within training programs and opportunity to witness successful outcomes, it would not be surprising to show a predilection for more frequent application of adverse methods to control interfering child behaviors. Parents, today's judges, appear inclined to view the appropriateness of various management styles and techniques by how their children respond at a given visit to the techniques applied by the practitioner. Where well-chosen agents and dosages are utilized reactions of parents in this study appear clearly in favor of using techniques that prove safe and efficacious. When ineffective sedation results, parental attitudes

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clearly lean in a direction that alternate methods are needed. In the present study, a variety of agent selection and dosing is suggested to best identify safe and effective alternatives to using physical restraint to manage varying levels of childhood anxiety and refractory behavior. It would seem logical that comprehensive inspection of training standards espoused in academic and clinical settings are warranted.

Conclusion

1. Under circumstances where no need for restraint is called for, parents reported 95% approval and preference indicating they would have no hesitation for the use of sedative pathways for future visits
2. Where transient need for restraint occurred, parental preferences diminished to 63% for utilization of sedative techniques for future visits for their child
3. Under circumstances where persistent need for restraint was needed to complete treatment, parents not surprisingly indicated they would almost universally opt for alternative strategies. Responses were divided equally between use of an unconscious technique or deferring treatment till a level of maturity or cooperative ability was reached.

Notable and frequent comments from parents included:

- Any day of the week it would be my preference to see the use of restraint over risk and occurrence of untoward drug interactions
- Under almost no circumstances do I find the use of physical restraint an acceptable method to deliver dental care for my child
- As I reflect on media reports in which catastrophic outcomes have occurred from the over-use or mis-use of sedative agents, I much prefer the dental team makes use of protective stabilization
- In this day and age, why is there so much variation in dentist's philosophy on what methods are best for managing fearful children? We sought opinions from several clinicians on the plusses and minuses of various methods for treating our very fearful three year old child. We were restrained when treated and we were in search of a safe and more effective alternative

Conflict of Interest

There are no conflicts of interest.

References

1. Nathan, JE The state of pediatric sedation literature: A Paucity of well-designed and controlled study. *J Dental Health Oral Res.* 2021;2(3):1-15.
2. Nathan JE. Retrospective comparisons of the efficacy and safety of varying dosages of Midazolam with and without Meperidine for managing varying levels of childhood dental anxiety: Over a 35 year period. *J Clin Pediatric Dentistry.* 2022;46(2).
3. Nathan JE. Retrospective comparisons of the efficacy and safety of varying dosages of Chloral hydrate-Hydroxyzine with and without Meperidine for managing varying levels of childhood anxiety: Over a 35 year period. *J Clin Pediatric Dentistry.* 2022;46(4).
4. Venham, LL, Murray, P, Gaulin-Kremer. Child rearing variables affecting the pre-school child's response to dental stress. *JDR.* 1979;58(11):2042-5.
5. Murphy, MG, Fields, HE, Machen, B. Parental acceptance of pediatric dental behavior management. *Ped Dent.* 1984;6(4):193-8.
6. Lawrence, SM, McTigue, DJ. Parental attitudes toward behavior management techniques used in pediatric dentistry. *Ped.* 1991;13(3):151-6.
7. Cassamasimo PJ, Wilson S, Gross L. Effects of US changing parenting styles on dental practices: perceptions of diplomates of the American Board of Pediatric Dentistry. *Ped Dent.* 2002;24:18-22.
8. Desai, SP, Shah, PP, Jajou, SS, Smita, PS. Assessment of Parental Attitude toward different behavior management techniques used in pediatric dentistry. *J Ind Soc of Pedo and Preventive Dent.* 2019; 37(4):350-9.
9. Vargas KG, Nathan JE, Qian F, Kupiety A. Use of restraint and management style for defining sedation success: A Survey of pediatric dentists. *Ped Dent.* 2007;29(3):220-7.
10. Rodriguez VBM, Costa L, Faria, PC. Parent's satisfaction with pediatric dental treatment under sedation: a cross sectional study. *Int J of Pediatric Dent.* 2020;31(3):10.

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