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PARENTAL COMPLIANCE OF PSYCHOLOGICAL
RECOMMENDATIONS FOLLOWING AN
OUTPATIENT CHILD ASSESSMENT

by

Shannon J. Pratt

A dissertation submitted in partial fulfillment
of the requirements for the degree

of

DOCTOR OF PHILOSOPHY

in

Psychology

Approved:

UTAH STATE UNIVERSITY
Logan, Utah

1997

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ABSTRACT

Parental Compliance of Psychological
Recommendations Following an
Outpatient Child Assessment

by

Shannon J. Pratt, Doctor of Philosophy

Utah State University, 1997

Major Professor: Dr. Lani M. Van Dusen
Department: Psychology

There is a dearth of studies investigating methods by which parental compliance may be enhanced. The primary purpose of this study was to investigate the relative efficacy of four conditions--high information, prompting, incentive, and comparison control--in increasing parental compliance. The self-help recommendation was to obtain a book or video from a local library. Parents were from a small, rural, northern Utah community; their children were diagnosed with externalizing behavior problems. Chi-square analyses were utilized to assess statistically significant differences, and effect sizes were computed to assess magnitude of association. The incentive intervention influenced parental compliance to a greater degree than either the comparison control or other intervention conditions. A secondary purpose of the study was to investigate the association of certain sociodemographic variables with parental compliance. Results of a

logistic regression were indicative of no contribution of sociodemographic variables to the prediction of parental compliance. The relationship of current results with previous studies is discussed, as well as implications for clinical practice and future research.

(97 pages)

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Shannon J. Pratt

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PROBLEM STATEMENT

A primary function of child evaluation clinics is to present recommendations to parents following the systematic assessment of their son or daughter. Although adherence to these recommendations is often assumed, literature would suggest compliance to be a notable and often unpredictable obstacle to achieving treatment outcomes (Puryear, 1993). Researchers have reported parental compliance rates ranging from 33% (Rivara, 1985) to 79% (Jones & Caldwell, 1981), depending on assessment circumstances. Most studies, however, have shown only moderate rates of compliance--between 50% to 70% (e.g., Human & Teglasi, 1993; Kolko, Parrish, & Wilson, 1985; Schour & Clemmens, 1974; Webersinn, Hollinger, & DeLamatre, 1991). In light of the seriousness of many clinic recommendations, as well as the dismal prognosis of noncompliance (Garfield, 1994), it is essential to understand the factors influencing parental compliance and to investigate pragmatic strategies by which it may be enhanced. As Witt and Elliot (1985, p. 253) stated, "A treatment that is not used is no treatment at all."

Researchers have identified several factors related to parental compliance with treatment recommendations, including socioeconomic status (Conti, 1975), parental mental health, and perceived need (Sutton & Dixon, 1986). However, investigators typically have employed causal-comparative designs (e.g., Human & Teglasi, 1993) to examine differences between noncompliers and compliers, for example at pretreatment time. As a result, they have underutilized experimental designs, and the influence of specific interventions on parental compliance has been neglected greatly, particularly

with regards to psychoeducational evaluations (Parrish, Charlop, & Fenton, 1986). This deficit is contrasted by the examination of compliance-targeted parental interventions in such relevant fields as medicine (e.g., Posovac, Sinacore, Brotherton, Helford, & Turpin, 1985), dentistry (e.g., Reiss, Piotrowski, & Bailey, 1976), and public health (e.g., Reiss & Bailey, 1982).

From experiments in these related fields, researchers point to the effectiveness of at least two types of compliance interventions--educational and behavioral. Tietge, Bender, and Scutchfield (1987) provided an example of an educational intervention in an attempt to increase parental use of child safety seats. They provided mothers with increased information about the features and benefits of safety seats and, subsequently, observed a 15% increase in compliance. Behavioral interventions consist of reward/punishment strategies, and are seen in a study by Peterson (1987). She investigated the effects of various forms of prompting--that is, by mail, phone, or media--on parental compliance of child immunization; mail contact proved to be most effective with low-risk, middle socioeconomic status parents. This form of intervention, as well as educational ones, holds strong promise for assisting parent follow-through of appropriate, professional advice. However, for practitioners within the child evaluation clinic to use these strategies confidently, and thus benefit from them, a base of directly applicable research must be established.

There is a lack of research addressing what type of interventions can be used to increase parental compliance to recommendations following a psychoeducational child assessment.

This study was proposed to investigate the influence of two types of interventions on parental compliance following a child assessment. It was aimed primarily at documenting intervention influences and, secondarily, at generalizing related findings (e.g., Joshi, Maisami, & Coyle, 1986).

REVIEW OF THE LITERATURE

Patient compliance to treatment recommendations is an important issue across a variety of human services fields. However, it deserves special attention in regards to child psychoeducational evaluation and treatment. Specifically, the child assessment process is an understudied item in general (Jellinek, 1986), the societal costs of noncompliance can be quite high in the delivery of child services (Garfield, 1994; Joffe, 1988; Nimgaonkar & Farrell, 1988), and the child evaluation process requires more attention to detailed regulations and procedure than adult procedures (Braden & Sherrard, 1987). The following review provides a definition of compliance, estimates of parental compliance rates, and theoretical models descriptive of the parental compliance process. In addition, two types of compliance interventions, educational and behavioral, are discussed.

Definition of Compliance

Compliance denotes the amount to which patients follow through with professional advice and guidance. The term, however, is cautiously used due to pejorative connotations of patient passivity and subservience (Sperry, 1985). Accordingly, emphases have been placed more recently on the concepts of adherence, cooperation, and mutual participation in effecting health care outcomes. With this in mind, compliance and adherence will be used interchangeably in this study and may be defined as “the extent to which the actions of patients, their families, and other

professionals coincide with clinical therapeutic recommendations” (Cadman, Shurvell, Davies, & Bradfield, 1984, p. 40).

Variables Associated with Noncompliance

Lack of compliance may take many forms, such as failure to enter treatment, failure to show for appointments, premature termination, and failure to perform assignments (Puryear, 1993). In addition, every client is a potential noncomplier, under certain circumstances, and no one variable is typically responsible for lack of adherence (Puryear, 1993). That is, noncompliance is influenced by a multitude of factors.

Variables associated with noncompliance include problem intensity, client expectations, extent of provider supervision, general social support, professional follow-up, quality of provider-client relationship, clarity and type of recommendation, and provider-client agreement with treatment goals (Conoley, Padula, Payton, & Daniels, 1994; Janis, 1983; Jones & Caldwell, 1981; Schour & Clemmens, 1974; Sperry, 1985; Wasserman & Kassinove, 1976). Outright resistance, patient autonomy conflicts, client acting-out episodes, medication side effects, general life circumstances, systems problems (e.g., transportation), limits in client abilities (e.g., memory, mental disorders), and simple misunderstanding or ignorance may also influence compliance rates (Famularo, Kinscherff, Bunshaft, Spivak, & Fenton, 1989; Kolko et al., 1985; Puryear, 1993; Rivara, 1985; Sutton & Dixon, 1986). Sociodemographic variables have been connected equivocally with compliance. For example, researchers have found evidence both for (e.g., Webersinn et al., 1991) and against (Human & Teglasi, 1993; Joost, Chessare,

Schaeufele, Link, & Weaver, 1989) parent education and child age contributions to paternal adherence. Other relevant familial variables (e.g., parental occupation, financial resources) have been linked to parental compliance--again, with some authors indicating (Dunst, Leet, & Trivette, 1988) and others not indicating (e.g., Nimgaonkar & Farrell, 1988) associations. Finally, although personality variables in general have been underresearched in this area, parental coping ability has been connected with follow-through for the child (Rivara, 1985),

A summary of variables investigated for their relationship with parental compliance is provided in Table 1. It is noteworthy that intuitively obvious factors (e.g., presence of externalizing problems, severity of child's disorder) do not consistently predict adherence (Cadman et al., 1984; Sirles, 1990). One should be cautious, however, in drawing strong conclusions from this summary. Since the studies are fairly heterogeneous, few apply to the precise parameters of the current study, and many contain significant internal validity flaws (e.g., data attrition). Clearly, there is room for additional investigation of variables associated with parent follow-through.

Rates of Compliance

Compliance, in general, has been reported to be a significant problem in a variety of fields, including medicine (e.g., Sackett & Haynes, 1976), psychotherapy (Butcher & Kolotkin, 1979; Epperson, Bushway, & Warman, 1983; Silverman, 1982), and behavioral health (Kirscht & Rosenstock, 1979; Ward & Morgan, 1984). Parental adherence rates have been noted as problematic, with one fourth to two thirds of parents

Table 1

Studies of Correlates of Parental Compliance

Study	Target	Context	Not associated	Associated
Bacon (1986)	Initial therapy session	Pediatric referral	<u>Child</u> : age <u>Mother</u> age, social class, religion, friend in treatment, social support	<u>Mother</u> : race, prior referral, marital status, family dynamics, criticism of child
Cadman, Shurvell, Davies, & Bradfield (1984)	Compliance with post-eval REC; mailed questionnaire	Multi-disciplinary child development center	<u>Child</u> : age, sex, severity of condition, presence of other handicaps, family constellation, number of siblings, number agencies involved	<u>Parents</u> : beliefs and attitudes regarding evaluation and REC
Conti (1975)	Initial child counseling appointment	School psychologist referral	<u>Child</u> : age, sex, birth order <u>Parents</u> : estimated resources, transportation, waiting list time, education level	<u>Child</u> : sex <u>Parents</u> : Number of conferences with school personnel, previous referral, estimated SES
Cottrell, Hill, Walk, Dearnaley, & Ierotheou (1988)	Child psychiatry intake appointment	Community referrals	<u>Child</u> : age, sex <u>Parent</u> : referral source, areas of residence	<u>Child</u> : anxiety level, truancy, language disorder <u>Mother</u> : marital status
Dunst, Leet, & Trivette (1988)	Commitment to treatment measure			
Gould, Shaffer, & Kaplan (1985)	Drop-out from intake process	Child psychiatric clinic	<u>Child</u> : sex, race, age, CBC scores <u>Parents</u> : SES, marital status	
Human & Teglassi (1993)	Follow post-eval REC; 1-5 rating of compliance	Multi-disciplinary development clinic	<u>Child</u> : age, sex <u>Parents</u> educ	

(table continues)

Study	Target	Context	Not associated	Associated
Jones & Caldwell (1981)	Post-eval REC compliance; 1-3 rating	Multi-disciplinary child evaluation clinic		<u>Child</u> : presence of emotional behavior problems, living with natural parents <u>Parents</u> : type of recommendation, understanding of REC
Joost, Chessare, Schaeufele, Link, & Weber (1989)	Initial counseling appointment	Pediatric referral	<u>Child</u> : medication, age, sex <u>Parent</u> : education, chief concern, location of residence	
Kolko, Parrish, & Wilson (1985)	Keep initial or second parent training appointment	Child behavior management clinic		<u>Child</u> : health status <u>Parent</u> : securing of transportation
Nimgaonker & Farrell (1988)	Follow referral for treatment intake interview	Child guidance clinic	<u>Child</u> : age, sex, duration of problem <u>Parents</u> : duration of wait, number of parents at home, employment status	<u>Parents</u> : presence of biological parent at home
Novick, Benson, & Renbar (1981)	Nonagreed termination from therapy	Outpatient child/adolescent clinic		<u>Child</u> : age, race, presenting problem <u>Mother</u> : occupation <u>Parents</u> : education level, divorce in past year, previous agency contacts, referral source
Rivara (1985)	Initial parent training/parent therapy appointment	Human services multi-disciplinary child evaluation	<u>Child</u> : age <u>Parent</u> : IQ	
Singh, Janes, & Schechtman (1982)	Drop-out of evaluation after diagnosis stage	Outpatient child treatment facility	<u>Child</u> : race <u>Parent</u> : presence of psychiatric illness, type of treatment recommended	<u>Child</u> : sex <u>Parent</u> : education, job status, self vs. other referral

(table continues)

Study	Target	Context	Not associated	Associated
Sirles (1990)	Drop-out from child intake process	Child guidance clinic	<u>Child</u> : externalizing presenting problem <u>Father</u> : age externalizing <u>Clinician</u> : degree held	<u>Parents</u> : family members present at intake, clinician's prediction of compliance, cancellation rate
	from diagnostics process		<u>Child</u> : problem severity <u>Parents</u> : wait list time	<u>Child</u> : internalizing present problems <u>Parents</u> : number of sessions attended <u>Clinician</u> : degree held
	from treatment process		<u>Parents</u> : income level, cancellation rate	<u>Mother</u> : education level
Webersinn, Hollinger, & DeLamtre (1991)	Therapy intake appointment	Battered mothers in shelter	<u>Mother</u> : previous job history, employment, supplemental income, nature of abuse	<u>Mother</u> : education level, previous exposure to counseling
Wikler & Stoycheff (1974)	Follow discharge REC; 1-4 rating by phone	Hospital multi-disciplinary evaluation of retarded children	<u>Child</u> : age, IQ <u>Parent</u> : change in family functioning	<u>Parent</u> : agreement with treatment, post-contact with ward, pre-admittance child care stress

failing to comply with various recommendations, either initially or over time; see Table 2 for a summary.

As indicated in Table 2, recommendations emanating from a multi-disciplinary team appear to enjoy higher levels of follow-through (e.g., Jellinek, 1986) than those from a single discipline (e.g., Gajdosik & Campbell, 1991) and those which regard appointment keeping (e.g., Bacon, 1986). In addition, all recommendations are not "created equal," even for the same client. Thus, for example, researchers have provided evidence of higher follow-through for counseling versus tutoring advice (Human &

Table 2

Parental Compliance Rates

Reference	Age ^a	Condition	Target	Rate
Bacon (1986)	9	emotion/ behavior problems	intake clinic attendance	62%
Cadman, Shurvell, Davies, & Bradfield (1984)	0-18	developmental handicaps	inter- disciplinary regimen	73%
Deaton (1985)	9.3	asthma	behavior/ medication regimen	10%
Deimann & KastnerKoller (1992)	NI	emotion/ behavior/ medical	inter-disciplinary/ family regimen	50%
Firestone (1982)	7	attention deficit disorder	medication regimen	56%
Gajdosik & Campbell (1991)	30 mo	gross motor delays	home exercise program	53%
Grunbaum, Beatriz, & Labarthe (1993)	5-8 grade	high cholesterol	re-evaluation appointment	53%
Human & Teglassi (1993)	5-18	emotion/ behavior/ education/ medical	inter- disciplinary regimen	66- 72%
Jellinek (1986)	11	emotion/ behavior/ education/ medical	inter- disciplinary regimen ^c	80%
Kolko, Parris, & Wilson (1985)	NI	behavior	intake clinic appointment	63%
Nimgaonkar & Farrell (1988)	9	behavior	initial clinic appointment	75%

(table continues)

Reference	Age ^a	Condition	Target	Rate
Oeffinger, Roaten, Hitchcock, & Oeffinger (1992)	2-12 mo	immunization deficient	immunization appointment	24%
Parrish, Charlop, & Fenton (1986)	2-20	developmental delays	intake and therapy- clinic appointments	42%
Patterson (1985)	Ni ^b	cystic fibrosis	medical regimen	68-72%
Rivara (1985)	0-12 mo	physically abused	inter-disciplinary regimen	33%
Wasserman & Kassinove (1976)	4, 6 grade	reading problems	reading recommendation	61%
Wikler & Stoycheff (1974)	6	mentally disables	inter-disciplinary	80%
Yokley & Glenwick (1984)	<=5	immunization deficient	immunization appointment	<30%

^aAge=the mean age unless otherwise indicated

^bNI=not included

^cInterdisciplinary=recommendations across areas (e.g., behavior, academic, medical).

Teglasi, 1993), for medical versus behavior management advice (Wikler & Stoycheff, 1974), and for classroom placement (Schour & Clemmens, 1974) versus self-help advice (Wasserman & Kassinove, 1976). The domain of self-help recommendations (e.g., reading a book about your child's problems) is a particularly important one, since a primary goal of child evaluation procedures is to increase parents' overall competence and self-sufficiency. In addition, personal observation reveals a high frequency of this recommendation being within health service clinics; that is, what provider has not suggested "reading this book," or "attending that group" at one time or another? Nevertheless, the self-help recommendation is an amazingly understudied item, and only

one moderately recent experimental study of relevance was located on PsychLit for the present study (Wasserman & Kassinove, 1976). Clearly, there is a need for further research on this form of recommendation.

Theories of Compliance

Several theories provide a basis for understanding parental compliance, including the Health Belief Model (Becker et al., 1979), Reimers, Wacker, and Koepl's treatment acceptability model (1987), and Conoley and colleagues' Model of Intervention Acceptability, Implementation, and Maintenance (Conoley, Conoley, Ivey, & Scheel, 1991).

Health Belief Model

The Health Belief Model grew out of the Public Health Service's attempts in the 1950s to explain and seek remedies for people's failure to engage in preventative health behaviors. Its authors were influenced by the theories of Kurt Lewin, and thus, special emphasis was placed on the phenomenological precept that one must understand a client's perception of the world to understand his/her subsequent motivation and behavior (Rosenstock, 1974). According to the theory, an individual's preventative health behavior is influenced by the (a) perception of susceptibility to the illness, (b) perception of illness severity if afflicted, (c) perception of benefits should action be taken, and (d) perception of barriers in undertaking action (Janz & Becker, 1984). According to Rosenstock (1974), perceived susceptibility and perceived severity contain significant

cognitive components and are partly dependent upon knowledge. Furthermore, although they provide a “force leading to action” (p. 331), they do not define the particular course of action, which is dependent upon perceptions of benefits and barriers. For example, people may feel susceptible to a serious disease and yet take no preventative action because they do not feel that (a) efforts would be efficacious, and/or (b) the cost (e.g., expensive, inconvenient, painful) would be too high. Alternatively, if the urge to action is high (i.e., high perceived susceptibility and severity) and there is a clearly perceived path of action that is productive and minimally aversive, then preventative action is likely.

Authors of the Health Belief Model posit several additional factors that influence the likelihood of action and which must be taken into account. One such factor involves cues or “trigger” for action (Rosenstock, 1974, p. 332), which may be internal (e.g., bodily states) or external (e.g., media messages), and whose required intensity varies depending upon levels of perceived susceptibility and severity. Other factors involve “modifying” (p. 334) agents, including demographic (e.g., age), sociopsychological (e.g., social class), and structural variables (e.g., disease knowledge) (Rosenstock, 1974).

Although the Health Belief Model was originally devised for the public health field, it has been applied to a variety of domains outside of that arena such as the medical treatment of adults and children (Jones, Jones, & Katz, 1988) and the psychoeducational assessment of children (Human & Teglassi, 1993). Human and Teglassi (1993), for example, sought to predict parental compliance with a recommendation for academic tutoring based on perceived severity, perceived susceptibility, and perceived barriers and

benefits factors. Child subjects in this study evidenced mild learning problems, and their average age was 11. Health Belief dimensions were measured with questionnaires, and compliance was measured with a 5-point Likert scale rated by parents 4 months after the interpretive conference (i.e., final recommendation session). Using a multiple regression model, combined Health Belief factors as well as demographic factors accounted for 21% (R^2) of the variance in the dependent variable. Of the Health Belief factors, only “perceived barriers” and “perceived benefits” accounted for a statistically significant ($p < .01$) amount of unique variance (i.e., $R^2 = 8\%$).

Precepts of the Health Belief Model have been well validated across many years of research (Janz & Becker, 1984). Empirical findings have forced, however, the alteration of several assumptions. For example, prior to 1974, perceived susceptibility was hypothesized to be the most powerful dimension of the HBM model. More recently, however, perceived barriers have been viewed as the primal factor of preventative behavior. Also, a different ordering of power is reportedly evident for individuals already experiencing symptoms of the illness versus those who are asymptomatic. Specifically, perceived barriers is still the most powerful factor with regards to symptomatic individuals, but perceived severity takes on a much greater role than it does in the preventative scenario (Janz & Becker, 1984).

Treatment Acceptability Model

The idea of treatment acceptability grew out of the notion of “social validity” (Kazdin, 1977), which refers to the amount of practical importance that society places on

applied research endeavors. This judgment of worth takes place in at least three domains: (a) the social significance of goals--are they what society really wants? (b) the appropriateness of procedures--does the end justify the means? and (c) the pragmatic value of the effects--are consumers satisfied with the outcome? (Wolf 1976).

Treatment acceptability deals primarily with the appropriateness of procedures and is defined as "the judgments about the treatment procedures by nonprofessionals, lay persons, clients, and other potential consumers of treatment" (Kazdin, 1980, p. 259). Furthermore, "judgments of acceptability are likely to embrace evaluation of whether treatment is appropriate for the problem, whether treatment is fair, reasonable, or intrusive, and whether treatment meets with conventional notions about what treatment should be" (p. 259).

The hypothesized link between acceptability and compliance is straightforward in that treatments which are "matched" with clients' attitudes, preferences, resource limitations, and general lifestyle (i.e., acceptable) are more likely to be implemented than those that are not so aligned (Cadman, Rosenbaum, Walter, & McNamee, 1986; Conoley et al., 1994; Jellinek, 1986; Reimers & Wacker, 1988; Wikler & Stoycheff, 1974; Witt, 1986). This is reflected in models of the treatment recommendation-compliance-maintenance process where treatment acceptability is posed as a precursor to treatment compliance (e.g., Reimers et al., 1987). Finally, treatment acceptability has been found to be a valid and useful construct in reference to college students' judgments of alternative treatments for problem child behavior (Kazdin, 1981); children's judgments of aversive procedures (Kazdin, 1994); inpatient staffs' judgments of alternative treatments (Kazdin,

French & Sherick, 1981), parents' judgments of behavioral treatments (Reimers, Wacker, & Cooper, 1991), and teachers' judgments of behavioral interventions (Witt, Martens, & Elliot, 1984). (See Elliot [1988] for a review.)

Conoley Model

A third model helpful in understanding treatment compliance is that proposed by Conoley et al. (1991). These authors sought to incorporate notions of previous models (Reimers et al., 1987; Witt & Elliot, 1985), and to place particular emphasis on consultee (or client) perceptions, as well as the consultant-consultee relationship itself. Each progressive step in the model toward compliance is founded upon the previous one. Specifically, intervention acceptability is dependent upon (a) the consultee's perception of fit between problem and intervention, (b) the consultee's beliefs regarding intervention level of difficulty, humaneness, and effectiveness, and (c) the nature of the consultee-consultant relationship. Implementation of the intervention is then dependent upon (a) the intervention acceptability, and (b) the consultee's ability and resources in enacting the intervention. Lastly, maintenance of the intervention is dependent upon (a) initial intervention implementation, (b) the amount of tolerable disruption in the consultee's life, and (c) the degree of change created by the intervention (Conoley et al., 1991). This model has received empirical support, particularly in terms of the importance of using the consultee-consultant relationship to marry client perceptions with intervention goals. Conoley et al. (1994), for example, sought to predict implementation of adult counseling recommendations based on the following: (a) judges' ratings of advice difficulty (Likert

1-3), (b) judges' ratings of match between client problem and advice (Likert 1-3), and (c) judges' ratings of therapist use of client strengths in advice giving (dichotomous, 0-1).

Compliance was measured as judges' ratings of clients' reports as to whether recommendations were implemented or not (dichotomous). Results of a multiple regression analysis revealed all three predictor variables to have added a statistically significant amount of unique variance to the equation ($p < .05$) and that, overall, 68% (R^2) of the variance in the compliance measure was accounted for.

Summary of Models

Although the three previously described models arose from different backgrounds, that is, public health, counseling research, and social validity research, they share certain basic assumptions. For example, (a) compliance is multiply determined, (b) client perception is a significant factor in the adherence process, (c) an implicit decision-making process (e.g., cost/benefit) is involved in compliance, and (d) both internal (e.g., client beliefs) and external factors (e.g., counselor behavior) influence the compliance process. Also, in line with assumption four, the models are supportive of (a) providing the client with knowledge (education), (b) providing supports or cues for the client (e.g. prompting, incentives), and (c) engaging in a problem solving process with the client. The first two of these methods will be discussed in the next section.

Interventions for Compliance

Three important forms of interventions for compliance are those focusing on

education, prompting, and incentive management. Although these strategies have been investigated little with regards to parental compliance following psychoeducational child assessments, they do enjoy basic intuitive appeal, theoretical support, and indirect empirical support (Kluger & Karras, 1983; Miller & Shank, 1986).

Education

Dunbar, Marshall, and Hovell (1979) define educational interventions as “those [that] rely most heavily on transmission of information and instructions as a means of changing behavior, for example,...written instructions, and ...education classes” (p. 174). In their model, “instruction may involve a variety of mediums such as verbal, written, slide/tape, model/demonstration, and/or rehearsal” (p. 175).

Educational interventions are important for compliance, since treatment understanding is a necessary precursor to treatment acceptability, and treatment acceptability, in turn, strongly influences treatment compliance (Reimers et al., 1987). Acceptability and compliance are dependent upon understanding for a basic reason--for a client to make an informed choice regarding the appropriateness of an intervention, he or she must comprehend the details of that intervention. Various researchers have substantiated the connection between education, acceptability, and compliance, both in general (Reimers et al., 1987), and with specific regards to parental compliance (Singh & Katz, 1985; Miller & Shank, 1986; Radius et al., 1978).

Although the imparting of information is a necessary aspect of educational interventions, it is not sufficient. Posovac et al. (1985) illustrated this point in a meta-analysis on the effects of various interventions to increase medical regimen compliance.

They report that, although educational programs were the most common form of intervention, schemes which aided clients in including desired behaviors into daily routines were, by far, the most influential (effect size = .71). Thus, educational interventions that involve some discussion and/or problem solving with the client may have a higher likelihood of success. Meichenbaum and Turk (1987) supported this proposition in their presentation of guidelines for prescribing health care treatment regimens (p. 127-132), many of which are aimed at not only increasing understanding, but at enhancing acceptability, and utilization of the information. Example suggestions include checking to see if the client comprehends the proposed treatment, encouraging discussion of the risks versus benefits of following treatment regimens, and discussing ways in which the client can self-monitor or keep track of the treatment regimen. Meichenbaum and Turk (1987) further proposed a general outline of steps for strong education programs. These steps include (a) the presentation of information, (b) customization of information to the client's ability and circumstances, (c) anticipation of and accommodation for potential problems (e.g., forgetfulness, low comprehension), and (d) staff persons' monitoring and control of their own behavior (e.g., use of technical jargon; p. 113).

Notwithstanding the intuitive importance of client education, there has been amazingly little research regarding the effects of educational strategies on subsequent compliance, particularly with regards to recommendations after child evaluation. Research from related areas such as pediatric practice (Miller & Shank, 1986; Rapoff & Christopherson, 1982), health care recommendations for child safety (Christopherson &

Gyulay, 1981), transitioning of children from hospital to home (Kruger & Rawlins, 1984), and training of counselors (Robinson & Kinnier, 1988) is positive.

As an example, Kruger and Rawlins (1984) studied the influence of a written instruction sheet on parental compliance with their child's diet regimen following hospital discharge. Conducting phone surveys 4 days after discharge, they discovered that parents receiving the instruction sheet had less problems with follow-through of recommendations than parents not receiving the sheet; this was true for two of the five recommendation areas. In addition, researchers found that parents receiving written information displayed a statistically significantly higher amount of regimen knowledge than parents who received just verbal information upon discharge; statistical significance was reached for three of the five recommendation categories.

Miller and Shank (1986) also investigated the influence of educational handouts on patient compliance, specifically with otitis media recommendations. They compared five groups--handout only, handout plus-nurse-review, handout plus-doctor-review, and two control groups. The primary dependent measure was appointment keeping at a 2-week follow-up. The authors report that all the treatment groups evidenced higher compliance at follow-up than the respective control group, and that the handout plus-nurse-review group displayed higher knowledge of treatment following intervention than the handout-only group. Thus, there is some support for the use of a handout over no handout, and for the use of a verbally embellished handout over an unembellished one. This latter finding is in line with research indicating that written information alone has limited impact on subsequent compliance (Morris & Halperin, 1979).

Prompting and Incentive Management

Behavioral prompting and rewarding fall within a larger conceptual category known as behavioral strategies. These “attempt to influence specific noncompliant behaviors directly through the use of [behaviorally founded] techniques such as reminders, self-monitoring, and reinforcement, but with information and instruction playing a secondary role” (Dunbar et al., 1979, p. 174). Additional methods include goal setting, corrective feedback, commitment enhancement procedures (Meichenbaum & Turk, 1987), tailoring of the prescribed regimen to specific client characteristics, contracting for desired behaviors, and graduating regimens according to mastery of successive steps (Dunbar et al., 1979). Meichenbaum and Turk (1987) described behavioral strategies, in general, as receiving more consistent ratings of success in the literature than most other adherence methods (e.g., education); however, no directly comparative studies were presented. However, as with educational interventions, behavioral strategies have not been studied well in reference to parental compliance with recommendations following child assessments.

Prompting

There is indirect evidence suggesting that behavioral prompting has the potential to be effective in a child assessment setting. For example, Casey, Rosen, Glowasky, and Ludwig (1985) obtained positive results for the use of telephoned and mailed reminders in enhancing appointment keeping behavior. Table 3 provides results of this and other studies on behavioral interventions.

Seventeen of 19 studies obtained for a literature review are featured in Table 3. Eight of the 19 studies involved adult subjects and 11 involved child subjects. Of the latter 11 investigations, 5 contained subjects with behavioral problems, and 6 contained subjects with health problems. Targeted data were as follows: Intake or return appointment (16/19 of the studies), community immunization rates (1/19), spelling homework (1/19), and check-in phone call (1/19). Fourteen authors investigated telephone prompting, and, of these, 13 found greater influences on target behaviors for interventions involving telephones than either for alternative interventions not involving telephones (e.g., letter), or for no intervention at all (e.g., control, baseline). Nine investigators compared several prompting interventions (e.g., telephone, mail, personal contact), and, of these, seven found no difference between specific interventions in terms of influence on target behaviors. Finally, 11 of the research authors utilized a control group, and 3 used a repeated measures design.

Ross, Friman, and Christophersen (1993) utilized prompting interventions in their efforts to increase appointment-keeping in an outpatient pediatric clinic. They randomly assigned 293 returning patients, over a 7-month period, to four combinations of three interventions--a mail prompt (i.e., a "letter reminder" sent one week before the appointment), a phone prompt (made 24 hours before the appointment), or a parking pass (to ease access to the clinic). Mail and phone prompts contained details of the follow-up recommendation (i.e., date, time, provider), and staff members were alternated to counterbalance possible gender and interpersonal style effects. Results of a chi-square analysis of a posttest-only group design were indicative of both prompting interventions

Table 3

Prompting Studies

Study	Condition	Target	Strategies	C ^b	Outcome ^c
Burgoyne, Acosta, & Yamamoto (1983)	adults seeking outpatient psychiatric services	first post-intake appointment	A) telephone prompt	Y	no effect
Casey, Rosen, Glowasky, & Ludwig (1985)	children with otitis media	return appointment	A) nurse education session B) two telephone reminders	Y	B>control A=B=(A+B)
Cavanaugh (1990)	female adolescents/medical problems	check-in phone call by adolescents	A) phone session date set at clinic B) phone session date set via phone	N	A>B 64% of clients called on correct day
Cromer, Chacko, & Phillips (1987)	young adults at STD ^a clinic	return appointment	telephone prompt	N	positive
Grover, Gagnon, Flegel, & Hoey (1983)	adults new to a medical clinic	first appointment	A) telephone prompt B) mail prompt	Y	A,B>control ^e A=B
Kluger & Karrass (1983)	adults seeking CMHC ^d services	intake appointment	A) orientation statement B) telephone prompt	Y	A>control A+B>control A=B=(A+B)
Meyers, Thackwray, Johnson, & Schleser (1983)	adults with hypertension	check-up appointment	A) telephone reminder B) home visit C) postcard prompt D) rotating	N	A,B,D>C D>A,B,C second prompt most effective (of possible 3)
Parrish, Charlop, & Fenton (1986)	developmental delayed children/behavior problems	initial and subsequent therapy sessions	A) stated waiting list contingency B) stated reward opportunity	Y	A,B>control A>B for initial evaluation session
Peterson (1987)	immunization deficient children	rate of community immunization	A) prompt at school registration B) media campaign C) mailed reminder D) telephone reminder	N	STUDY 1 A>B STUDY 2 D>C

(table continues)

Study	Condition	Target	Strategies	C ^b	Outcome ^c
Planos & Glenwick (1986)	children seeking CMHC services	intake appointment	A) phone prompt 1 day<intake B) letter prompt 1-2 days<intake	Y	A,B>control
Reiss, Piotrowski, & Bailey (1976)	child dentist referrals	first appointment	A) one mail prompt B) mail, phone, and visit prompt C) mail prompt and \$5 incentive	N	B,C>A C>B C most efficient
Reiss & Bailey (1982)	child dentist referrals	first appointment	A) multiple contact B) problem solve C) incentive	Y	A,C,(B+C)>control A most efficient
Ross, Friman, & Christophersen (1993)	children in need of well-care or illness monitoring	return appointment	A) mailed reminder B) telephone reminder C) parking pass	Y	A,B,C>control A=B=C
Swenson & Pekarik (1988)	adults seeking CMHC services	intake appointment	A) male prompt 3 days<intake B) mail prompt 1 day <intake C) mail orientation 3 days <intake D) mail orientation 1 day< intake	Y	D>control A=B, C=D C,D>A,B
Turner & Vernon (1976)	adult seeking CMHC services	intake appointment	telephone prompt	N	treatment phases>baseline phases
Warzuk, Parrish, & Handen (1987)	children with behavior problems	initial evaluation appointment	A) enhanced information at phone intake B) problem solving at phone intake	Y	B,(B+A)>A, control B=A, A=control
Wasserman & Kassinove (1976)	children with reading problems; 4th and 6th	purchase/read a book	A) recommendation with incentive B) recommendation with high information C) formal/informal clothing D) "Dr." vs. "Mr."	Y	D,C=no effect B,C>control for "initial" compliance A>control for "delayed" compliance

^a STD=sexually transmitted disease; ^b C=control group: Yes (Y) or No (N); ^c Positive=had significant effect on target behavior, Neutral=had no significant effect on target behavior; ^d CMHC=community mental health center; ^e ">" = "better than;" in the desired direction.

being statistically significantly different from the control group in terms of cancellation rates. Specifically, the prompting interventions were associated with patients appropriately canceling more appointments than if they were not prompted at all (i.e., control group). Thus, wasted professional resources, in the form of unkept appointments, may be spared as an outcome of prompting interventions.

Incentive Management

Incentive programs have been investigated minimally with regards to the child evaluation process. However, as with behavioral prompting strategies, there is promising indirect evidence. For example, authors have suggested incentives such as dentist bill coupons (Reiss & Bailey, 1982), free parking passes (Ross et al., 1993), monetary gifts (Reiss et al., 1976), lottery tickets (Parrish et al., 1986), and free psychoeducational sessions (Wasserman & Kassinove, 1976) to influence parental compliance.

The differential effectiveness of various incentives, however, has not been established, and incentive interventions, in general, may be no more powerful than other behavioral strategies--for example, prompting (Ross et al., 1993). Nevertheless, there is some evidence that prompting plus incentive-management provides the best all-around option (i.e., effective and economical) for increasing parental adherence (Reiss et al., 1976).

Yokley and Glenwick (1984) provided an example of an incentive intervention. They evaluated the impact of four procedures designed to encourage parents to obtain immunizations for their children. The families of 1,133 children were assigned to one of

six conditions, which consisted of prompts, a monetary incentive, and control exposures (i.e., attention and normal). The monetary condition involved a written specific prompt (i.e., client specific information) along with an invitation to participate in a \$175.00 lottery, dependent upon the returning of a ticket and immunization follow-through. Treatment integrity checks were indicative of reliable implementation of conditions. The researchers concluded from statistical analyses that, compared to control groups, and after 2 weeks, participation in the monetary incentive group was associated with higher frequency of inoculations (χ^2 ; $p < .001$), higher frequency of clinic attendance ($p < .001$), and total number of inoculations received ($p < .001$). In addition, the specific prompt plus monetary incentive condition was related to a statistically significant greater number of inoculations than either the specific or general prompt condition ($p < .05$).

Summary of Interventions

There is a lack of true or quasi-experimental investigations within the research base of parent compliance to recommendations following child assessments. Though experimental designs have been employed, these only have been for indirect areas of interest, for example, behavioral prompting to increase compliance with child psychiatry appointments (e.g., Joshi et al., 1986). The few authors who have focused on the recommendation process of child evaluations (e.g., Conti, 1975; Jellinek, 1986; Schour & Clemmens, 1974) have not manipulated intervention variables. For example, Human and Teglas (1993) utilized multiple regression procedures to predict parental compliance with recommendations from demographic characteristics and questionnaire responses; no

specific interventions were studied, however, and no causal relationship could be firmly established. Also, Jones and Caldwell (1981) utilized a multivariate discriminant analysis function to predict which level of recommendation compliance (e.g., compliance, partial compliance, noncompliance) parents would exhibit, based on a variety of family and situation variables (e.g., demographics, type of recommendation). Specific interventions were not investigated and no causal relationship could be conjectured.

Another criticism of the research is that studies on educational and behavioral strategies contain notable limitations. For example, in regards to studies of written educational information, authors have described interventions inadequately, failed to show preintervention equivalence of groups, proceeded without addressing treatment integrity, failed to clarify instrumentation methods, utilized inappropriate statistical procedures, and attempted to generalize findings beyond that allowed by sample characteristics (e.g., Kruger & Rawlins, 1984; Miller & Shank, 1986). Other studies have been more methodologically sound, though confidence in conclusions still has been reduced by the use of small sample sizes (Robinson & Kinnier, 1988) and potential Hawthorne effects (Christopherson & Gyulay, 1981). Studies on behavioral prompting have firmer support, with potential strengths including large sample size, detailed description of variables, appropriate statistics, random assignment of subjects, social validity analysis, and theoretical rationale for hypotheses (e.g., Meyers, Thackwray, Johnson, & Schleser, 1983; Reiss et al., 1976; Warzuk, Parrish, & Handen, 1987). Other prompting study results have been devalued, however, due to such problems as selection bias in group assignment, potentially disproportionate attrition (e.g., Peterson, 1987),

minimal description of the independent variable (e.g., Cromer, Chacko, & Phillips., 1987), and loss of experimental data (e.g., Turner & Vernon, 1976).

Finally, a significant void in the literature on parental compliance concerns the comparison between an educational approach and a behavioral one. Although this distinction may be superfluous, for example, educational interventions typically contain behavioral aspects, and vice versa (Meichenbaum & Turk, 1987), it would seem important to determine if an educationally oriented intervention would influence behavior differently than a behaviorally oriented one. Wasserman and Kassinove (1976) attempted this comparison, though their theoretical rationale was from a social power perspective rather than from an educational or behavioral one. They investigated the influence of two types of school psychologist recommendations on parental compliance with a recommendation to buy a book for their middle-school-aged reading-challenged child. The first recommendation (high information) was intended to provide subjects with increased knowledge regarding the recommendation and involved giving explanations of what the book was about and how it might be helpful. The second recommendation (incentive) was intended to offer a reward to parents who bought and read the book; the reward was a free session with a psychologist. Data were analyzed by a chi square test. Authors indicated that for initial compliance (i.e., picking up the book order form), both interventions were statistically more influential than no intervention at all. For delayed compliance (i.e., sending in the order form), only the incentive intervention was statistically more influential than no intervention at. Although these results are promising, there is still a need to generalize findings to alternative populations, gather a

larger subject pool, analyze potentially covarying sociodemographic factors, create interventions under a better founded theoretical base, more thoroughly address potential internal validity threats, and utilize psychoeducational contexts which are more typical of actual practice (e.g., comprehensive evaluations).

Summary

Parents' compliance of psychological treatment recommendations for their children is often problematic (e.g., Rivara, 1985), and furthermore, is influenced by a host of demographic and sociopsychological factors (e.g., Dunst et al., 1988). In considering the cost to both the family and child of not adhering to treatment suggestions (Nimgaonkar & Farrell, 1988), it is important to investigate all research avenues in order to better understand and influence parental compliance.

Knowledge on general parental compliance has been gathered through both nonexperimental (e.g., Singh & Katz, 1988) and experimental studies (e.g., Kruger & Rawlins, 1984). Proposed models of compliance also aid in understanding the phenomena and include the Health Belief Model (Rosenstock, 1974). These models posit a link between perceptions and actual compliance and support the use of educational and behavioral strategies.

Despite foundations in the parental adherence literature, however, there have been relatively few applications to the child evaluation/recommendation process. In addition, although there are a few causal-comparative studies aimed at this area (e.g., Human & Teglassi, 1993), there are no recent experimental ones.

Furthermore, within this context, the following questions have not been addressed adequately: What is the association between certain subject variables and parental compliance? and, what is the association between perceptions and parental compliance?

THE STUDY

Purpose

The primary purpose of this study was to investigate the influence of three interventions on parental compliance with a simple recommendation following a psychoeducational child assessment. Because of the scant literature base on this topic, no specific prediction regarding the superiority of one treatment over another was made. A secondary purpose of this study was to investigate the relative acceptability of these interventions, and relatedly, to investigate the association between acceptability of an intervention and subsequent compliance with it.

Objectives

Specifically, the objectives were as follows:

1. To compare parental compliance, measured dichotomously, under four different treatment conditions--high information, prompting, incentive, and control.
2. To describe the association between parental compliance and selected sociodemographic variables.
3. To compare parent scores on a measure of perceived barriers/benefits under four different treatment conditions--high information, prompting, incentive, and control.

METHOD

Design

The design was an experimental control-group posttest-only (Campbell & Stanley, 1963). Pretesting was not possible as the target construct (compliance) was not relevant at preintervention time. The design involved two dependent variables and one independent variable. The dependent variables were parent report of compliance or noncompliance and scores on a measure of intervention acceptability, the Barriers/Benefits Scale. The independent variable had four components: (a) high info, (b) behavioral prompting, (c) incentive, and (d) comparison control. The high info and incentive interventions were modeled after those of Wasserman and Kassinove (1976).

Subjects

Subjects were the parents of children referred for a psychoeducational evaluation at a child clinic located in northeastern Utah. The children were predominantly Caucasian, male, of average intellect, diagnosed with a behavior disorder (i.e., ADHD, ODD, CD), and exhibited problems of moderate severity. The parents were typically self-referred, between the ages of 30 and 50, and of middle socioeconomic status. See Table 4 for specific statistics on the study sample.

A recommendation commonly given during final recommendation (“wrap”) sessions at the clinic was utilized. The advice was for parents to acquire familiarity with their child’s problems by checking out a book or video from a local resource library (i.e.,

Table 4

Sample Characteristics

Variable	Mean (Range)	Variable	Mean (Range)
Mother's education	14 (10-21)	Father's education	15 (12-20)
Mother's income	17 (0-58)	Father's income	40.2 (4-150)
Mother's Age	38.3 (27-55)	Father's age	41.1 (25-60)
Marital status	87% married 2% single 7% divorced	Number of children in home	3.5 (1-9)
Child's IQ	98.8 (63-126)	Child sex	83% male 17% female
Child race	98% Caucasian	Severity of problem (1-7)	4.3 (1-7)
Wait list time	4.4 weeks (0-13)	Cancellations	87% with none (0-2)
Had previous	68% no	Study month	50% during months 8-11
Total sessions	3.4 (2-6)	Referral source	Doctor 28%, school 25%, friend 21%
No shows	94% with none		

Mountain Plains Regional Family Resource Library). Subjects who had checked out library materials within 2 weeks prior to the wrap session were excluded from the study. This is due to the idea that parents who had just gone to the library represented a different population of parents who had not done so; specifically, the recommendation would seem less appealing or even redundant for the former.

Materials

Assessment

Two dependent variables were examined in this study: scores on a perceived barriers/benefits to compliance scale, and the presence or absence of a product signifying actual compliance. In addition, sociodemographic, as well as general, case information was collected by surveys given to both parents and case managers following the final recommendation session.

Perceived Barriers/Benefits Scale (modified). Human and Teglasi (1993) devised this scale in a theoretical investigation of the Health Belief Model (see Appendix A). It was designed to assess parents' perceptions on how appropriate and convenient follow-through of a recommendation would be, given current resources. The questionnaire is comprised of 12 items on which parents rate, via Likert-type, how strongly they agree (i.e., "strongly agree" [1]..."strongly disagree" [5]). The authors report a coefficient alpha of .84 for internal consistency. A principal axis factor analysis resulted in one factor, and thus, barrier and benefit items are scored together. Statistically regressing a host of variables onto a Likert-type rating of parental compliance, the authors found scores on the Perceived Barriers/Benefits Scale to account for 8% (R^2) of the variance in parental compliance to a tutoring recommendation. Total variance accounted for by all predictor variables, including demographic ones, was 21% (R^2).

Compliance. Compliance was defined as checking out a video, book, or other written material from the resource library before, or on, the 15th working day subsequent

to the wrap session. Subjects signed their names and the date upon receiving materials, and these signatures comprised data signifying follow-through. Compliance will be measured by the presence or absence of signatures (i.e., “yes” or “no”). To obtain the data, the investigator either visited the library, or called on the phone, and asked the library attendant if certain subject’s names were registered in their rental log. In addition, parents were called, on or after the 15th day, to inquire about compliance; this procedure was done for cases in which parents may have complied, but did not sign their names at the library.

Intervention Scripts

Scripts were used for training and treatment integrity purposes. Below is a description of the rationale behind the script for each intervention condition, as well as the wording of the script itself.

Comparison control. Subjects in this condition participated in the standard wrap process, with the exception of receiving the target recommendation in a precise and consistent fashion and receiving a map directing parents how to reach the library. It is noted that this condition was not a status quo control since the target recommendation traditionally is not given in a consistent manner across wrap sessions. The protocol for the control condition was as follows:

We always recommend that parents gain further knowledge regarding their child’s condition. Therefore, we would like for you to check out either a book or video from a local parent resource library to learn more about _____. Materials at the library contain suggestions which psychologists, educators, and parents have found effective. We feel that these materials would be most beneficial to you.

Here is a map of how to get to the Resource Library and a listing of hours during which you may contact them.

Recommendation with high information. This condition was educational in nature and involved the giving of supplemental verbal information. It was aimed primarily at increasing client understanding of the recommendation and secondarily at supporting clients in incorporating the suggestion into their daily lives (Johnson, 1990). It has empirical support in studies demonstrating a relationship between information giving and compliance (e.g., Miller & Shank, 1986). The protocol for the current study was based on that of Wasserman and Kassinove (1976), and is as follows:

We always recommend that parents gain further knowledge regarding their child's condition. Therefore, we would like for you to check out either a book or video from a local parent resource library to learn more about _____. Materials at the library contain suggestions which psychologists, educators, and parents have found effective. We feel that these materials would be most beneficial to you.

Many parents that we've worked with have found that by reading a book or viewing a video, for example on _____, they can figure out new ways to deal with the problem and to manage their own stress as well. Materials at the library typically are written by clinicians who have spent many years collecting knowledge and testing the techniques they recommend. I have utilized many of the library materials myself and I have worked with parents who have also used them, and I can say that many children have improved significantly after their use. When do you think that your schedule will allow you to go to the library and check out a book or video? [brief (i.e., <2 minutes) problem solving with client if needed to arrive at a time]. Good, it sounds like you have a plan.

Here is a map of how to get to the Resource Library and a listing of hours during which you may contact them.

Recommendation with prompting. This condition involved a phone call made to parents 1 to 2 days after the wrap session. The protocol for this intervention involved

several fundamental aspects of prompting, which include (a) a reminder of the recommendation, and (b) a verbal request to adhere to it (e.g., Cromer et al., 1987; Ross et al., 1993). A phone versus mailing prompting procedure was chosen because of the encouraging literature base for telephone prompts and because of the importance of personal contact in serving mental health clients (Meyers et al., 1983).

The case coordinator performed the promptings, and only prompting for the target recommendation was to occur during the call. After prompting, the case coordinator was to excuse him- or herself from the phone and offer to call the client on another day if needed. However, if the client had concerns that the case coordinator did not feel ethically comfortable in deferring, then further discussion may have taken place. The typed protocol used for the behavioral prompting intervention is shown below. The protocol used during the wrap session was the same as for the comparison control condition.

Hello, Mr./Mrs. _____, this is _____ from Clinical Services at the Center for Persons with Disabilities at Utah State University/(USU). I'm calling briefly to check on your follow-through of one of the recommendations given to you at the wrap session on _____. We've been giving this recommendation a lot lately and we're checking to see how many parents have been able to follow through.

The recommendation was for you and/or Mr./Mrs. _____ to check out a book or video from the Family Resource Library in order to gain more knowledge regarding _____ child's strengths and weaknesses. We feel that this is an important recommendation since it can provide you and your husband/wife with additional ways to manage and help _____. Have you been able to check out a book or video from the parent library yet?

A) (If yes: Then data for this subject cannot be used.) Good, I'm glad to hear that. Thank you for your time.

- B) (If no:) Again, I'd really like to encourage you to follow through on this recommendation, since the team felt it important in helping _____. I think the knowledge that you can gain will be immensely helpful in learning how to better deal with _____. Thank you for your time, and if there is something else that we need to talk about please call me or I can call you at another time. I've got to go right now.
- C) Make arrangements to talk at another time if needed.

Recommendation with incentive. This intervention involved the promise of a reward contingent upon parents' follow-through of the recommendation. The protocol was as follows:

We always recommend that parents gain further knowledge regarding their child's condition. Therefore, we would like for you to check out either a book or video from a local parent resource library to learn more about _____. Materials at the library contain suggestions which psychologists, educators, and parents have found effective. We feel that these materials would be most beneficial to you.

Let me tell you about something we've been offering lately to help parents with our advice. If you take the information I'm about to give you, check out a book or video from the resource library which applies to _____, and then call me to let me know that you have followed through, then we can arrange a free session with clinic staff for you and/or your child to more fully discuss problems with _____. This would be a free session, even though we typically charge around \$60 per appointment. Of course, it is important for you to have checked out and looked at the library materials before the session in order for it to be most productive.

Here is a map of how to get to the Resource Library and a listing of hours during which you may contact them.

Procedures

Following the intake interview, clients were asked to participate in the study. At this time, a consent form (see Appendix B) and a sociodemographic questionnaire were

distributed for completion. Subjects were then sequentially assigned to one of four conditions: high info, incentive, behavioral prompting, or comparison control. That is, the first subject received the high info intervention, the second received the prompting condition, and so on, with this sequence being repeated until 55 subjects were collected; the ceiling placed on number of subjects was due to time factors. Treatment situations involved verbal content spoken by the case coordinator at the end of the wrap session and subsequent to the giving of other recommendations. Delivery of this verbal content lasted from 1 to 5 minutes. At the very end of the wrap session, parents were asked to complete the Barriers/Benefits Scale, and, after the wrap session, case coordinators completed a basic information questionnaire on the case (e.g., diagnosis, date of wrap).

Alteration of Current Clinic Protocol

Clinic evaluation procedures were minimally modified. Time taken to recite the verbal content of interventions was only several minutes beyond that for standard recitation of the target recommendation. For measures of compliance, the target recommendation was given consistently for all wrap sessions in the comparison control condition. This demand was seen less as an alteration of clinic protocol than as an enhancement of existing procedures. Also, wrap sessions were scheduled on dates after which subjects were able to come to town within a 16-day period.

Training of Case Coordinators

There were six case coordinators involved in this experiment over the 16 months of data collection. Each received a packet, with both verbal and written information

regarding procedures, and each was consulted every 2 to 3 weeks to inquire as to any problems in procedures; these checks were done by either the primary researcher or a graduate student assistant. Each case coordinator was asked to memorize the scripts, except the prompting call script, which one could view while prompting, and repeat them back to the investigator with at least 75% accuracy. Evaluation involved putting a slash through words read verbatim, and the proficiency score was the number of slashed words divided by the total number of words in the passage. One case coordinator was not assessed on her proficiency due to schedule constraints, and this person agreed to read from the written script during the wrap session. This was not considered a significant alteration of the intervention, considering this person's presentation of the script.

During training sessions, case managers memorized and read back the script with an average of 88% on the first attempt, and only one case manager had to attempt the memorization on another day. This is indicative of the nonintrusiveness and ease with which case managers could memorize and thus carry out the interventions.

Treatment Integrity

An analysis of study conditions was performed to ensure that interventions were implemented as planned. The same rating method used for coordinator training was used for a sample of audio-taped wrap sessions. If a proficiency rating of below 75% was made during a sampling, then retraining took place until proficiency was reached. Although the original goal was for integrity checks on 25% of wrap sessions, only 15% were actually monitored. This shortage was due to logistical problems in coordinating

the researcher's schedule with that of the case manager's. In addition, these integrity checks were performed across only three case managers. Thus, the risk of the interventions not being carried out correctly is raised. However, considering the straightforward nature of the intervention, the accuracy with which case managers enacted the intervention in practice, and the high accuracy of those integrity checks which were done (i.e., 91% with no retraining), this risk is seen as a minimal influence on study conclusions. Finally, the percentage of interrater agreement (agreements divided by the sum of agreements plus disagreements) was high (i.e., 93%; with one discussion and re-scoring). This is indicative of the rating method being used in a reliable manner.

RESULTS

Intervention Effects on Parental Compliance

The primary objective of this study was to determine the relative association of three interventions with subsequent parental compliance of a recommendation to obtain materials from a local library. The dependent variable was an actual visit to the library, as measured by parent report in a phone call. The percentages of compliance across conditions are displayed in Table 5. As seen in Table 5, there was a trend for greater compliance in the incentive condition, relative to all others, and for relatively equal compliance among the high information, prompt, and control conditions.

To determine the statistical significance of these findings, a chi-square procedure was performed. Results of this test were indicative of there being no statistically significant differences between groups, $\chi^2(3) = 6.29$, $p = .98$. This statistical outcome, however, was not surprising considering the study's small sample size and subsequently reduced statistical power.

Table 5

Contingency Table for a Chi-Square Test

Intervention	Complied (%)	Did not comply (%)
High information	4 (30)	9 (69)
Prompt	5 (38)	8 (60)
Incentive	10 (71)	4 (28)
Control	4 (30)	9 (69)

Effect sizes, which are by definition independent of sample size, provided a more useful conceptualization of the study outcome. The Cramer's \underline{V} was chosen as a measure of magnitude for the current study because it can be used with 2 x 2 or larger tables, it is restricted to the range of 0 to 1, and it can obtain upper limits of the 0 to 1 range where appropriate. These are characteristics not applicable to the phi coefficient or coefficient of contingency, two other popular chi-square-based effect sizes (SPSS, 1993a). The formula for the Cramer's \underline{V} is included below.

$$V = \sqrt{\frac{\chi^2}{N(l-1)}} \quad \text{where } l = \text{the smaller of rows or columns}$$

The overall Cramer's \underline{V} obtained was .34. This result is indicative of a moderately sized relationship between group membership and parental compliance. Thus, whether parents will comply or not was moderately influenced by the type of intervention they received. Pairwise Cramer's \underline{V} statistics were calculated to investigate further the relative efficacy of each treatment. Specifically, comparisons of the high info, prompting, and incentive interventions against the control group revealed a moderate effect size only for the incentive group (Cramer's \underline{V} = .00, .08, and .40, respectively). This greater effect for the incentive group was also seen in pairwise comparisons of the incentive versus high info group (Cramer's \underline{V} = .40), and incentive versus prompting group (Cramer's \underline{V} = .33). The pairwise comparison of the high info versus prompting

group resulted in a small effect size (Cramer's $\underline{V} = .08$). Thus, in summary, the contrast of greater compliance in the incentive condition with lower compliance in all other conditions (including control) accounts for the moderate relationship between intervention and parental compliance. Pragmatically, this means that our predictability for parental compliance increases any time we are comparing incentive group participation with any other group participation.

To statistically explore the advantages of the incentive condition, the three other conditions were collapsed into one category and compared in a 2 x 2 chi-square to the incentive condition alone. In this analysis, the difference between the percentage of compliers in the incentive group differed statistically from the percentage of compliers in all other groups combined, $\chi^2(3) = 6.09$, $p = .01$. The magnitude of this effect was moderate (Cramer's $\underline{V} = .33$). The contingency table for the chi-square is displayed in Table 6.

Analysis of Sociodemographic Group Differences

To determine if unequally distributed sociodemographic variables might have

Table 6

Contingency Table for a Chi-Square Test (Collapsed Groups)

Intervention	Complied (%)	Did not comply (%)
Incentive	10 (71)	4 (28)
All others	13 (33)	26 (66)

influenced chi-square test results, several variables were investigated. These were variables in which the relationship to parental compliance was suspected a priori, or in which means across groups were different to the point of deserving statistical inspection. These variables included the percentage of married parents, number of children in the home, income level of the father, education level of the father, education level of the mother, and time on the clinic waiting list. The distribution of variable means across conditions is displayed Table 7.

To determine if differences in marital status between groups were statistically significant, a chi-square test was performed. Results of this analysis were indicative of

Table 7

Table of Means and Percentages for Selected Demographic Variables

Variable	High information	Prompting	Incentive	Control
Percentage married	92%	92%	87%	92%
# of children	3.5 (3.4)	3.2 (2.2)	3.0 (1.5)	4.4 (1.4)
Father's income	36 thsd (24)	41 thsd (16)	37 thsd (21)	45 thsd (34)
Father's education	14.3 yrs (1.6)	14.8 yrs (2.4)	15.4 yrs (2.7)	(15.3 yrs (2.3)
Mother's education	13.9 yrs (1.7)	14.3 yrs (2.6)	14.3 yrs (2.4)	13.2 yrs (1.8)
Wait list time	5.0 wks (2.3)	3.6 wks (2.0)	5.4 wks (4.19)	3.3 wks (3.6)

no statistically significant differences between intervention conditions in terms of percentage married, $\chi^2 = 3.06(6)$, $p = .80$. In addition, the magnitude of association between group membership and marital status was small (Cramer's $V = .17$).

For all other variables, ANOVAs were conducted. Results of the ANOVAs, in Tables 8 through 12, revealed no statistically significant differences between groups in number of children, $F(3, 49) = 2.19$, $p = .10$; father's income, $F(3, 44) = .37$, $p = .77$; father's education, $F(3, 45) = .65$, $p = .58$; mother's education, $F(3, 48) = .73$, $p = .54$; or wait list time, $F(3, 41) = 1.13$, $p = .35$. In addition, the magnitude of associations between group membership and the variables was small. Specifically, eta-squared effect sizes ranged from .03, for father's income level, to .12, for number of children in the home.

Treatment Integrity

Because treatment integrity checks were not conducted on a portion of cases, differences in compliance across cases where integrity checks did versus did not take

Table 8

Results of an ANOVA (Number of Children at Home)

Source	df	Sum of square	Mean squares	F	F prob.
Between groups	3	16.44	5.48	2.19	.10
Within groups	49	122.77	2.51		
Total	52	139.21			

Table 9

Results of an ANOVA (Father's Income Level)

Source	df	Sum of square	Mean squares	F	F prob.
Between groups	3	751.33	250.44	.37	.77
Within groups	44	27624.57	673.77		
Total	48	28375.91			

Table 10

Results of an ANOVA (Father's Education Level)

Source	df	Sum of square	Mean squares	F	F prob.
Between groups	3	10.19	3.40	.65	.58
Within groups	45	235.73	5.24		
Total	48	245.92			

Table 11

Results of an ANOVA (Mother's Education Level)

Source	df	Sum of square	Mean squares	F	F prob.
Between groups	3	10.07	3.36	.73	.54
Within groups	48	220.75	4.59		
Total	51	230.83			

place were assessed. Results of the analysis did not support a relationship between the presence of treatment integrity checks and parental compliance, $\chi^2(1) = .053$, $p = .82$; Cramer's $V = .03$. The contingency table is displayed in Table 13.

Table 12

Results of an ANOVA (Time on Waiting List)

Source	df	Sum of square	Mean squares	F	F prob.
Between groups	3	35.08	11.69	1.13	.35
Within groups	41	423.72	10.33		
Total	44	458.80			

Table 13

Contingency Table for Chi-Square Analysis (Integrity Check)

Integrity check	Complied (%)	Did not comply (%)	Expected frequencies %
No	6 (26)	7 (23)	24
Yes	17 (74)	23 (76)	76

A potential internal validity threat in this study deals with the rival hypothesis that experimental results are due to qualities of the case managers versus intervention effects. This is a major threat only if there is evidence of significant uncontrolled case manager variables (e.g., interpersonal style), and the assignment of case managers differed significantly across interventions. Thus, percentages of compliance across case managers were inspected and a chi-square analysis was performed. Results were indicative of no statistically significant difference between case managers in terms of compliance rates, $\chi^2(6) = 10.95, p = .08$. The results of the chi-square analysis should be interpreted cautiously, however, based on missing data and a high number of cells with low expected frequencies. In addition, visual inspection, as well as the Cramer's V results

(Cramer's $V = .45$), lends support to the notion that there is a relationship between case manager assignment and parental compliance (see Table 14).

Next, to investigate whether the distribution of case managers across intervention conditions could account for results, case manager assignments to conditions were visually inspected (Table 15). The pattern of assignments did not coincide with that which would have been expected if more efficacious case managers had been disproportionately assigned to more efficacious conditions.

Prediction of Compliance

In order to determine the extent to which prediction of parental compliance might be aided by selected sociodemographic variables, a logistic regression was performed. Unlike linear regression, logistic regression is designed specifically for prediction of a dichotomous dependent variable. Logistic regression was also chosen over discriminant function analysis for several reasons. First, discriminant analysis is not well suited to a

Table 14

Contingency Table for Chi-Square Analysis (Case Manager)

Case manager	Complied (%)	Did not comply (%)
#1	3 (21)	11 (79)
#2	5 (31)	11 (69)
#3	6 (66)	3 (36)
#4	4 (66)	2 (36)
#5	(0)	1 (100)
#6	3 (60)	2 (40)
#7	2 (100)	(0)

Table 15

Distribution of Case Manager's Across Conditions

Case manager	High info	Prompting	Incentive	Control
#1	5	3	1	5
#2	3	4	6	3
#3	2	3	1	3
#4	3		3	
#5		1		
#6		1	2	2
#7		1	1	

mixture of nominal and continuous independent variables, and second, its use involves more stringent criteria than the logistic regression (e.g., multivariate normality of independent variables; SPSS, 1993b). The second point is crucial for the present study, considering the small sample size and high percentage of missing cases.

Variables

Eighteen variables were entered into the equation. These variables were chosen based on previous studies linking them to parental compliance. The variables are detailed in Table 16.

Dummy coding was performed on categorical data for the analysis. A backward/stepwise procedure was implemented due to no strong a priori notions regarding which variables might contribute most strongly to the prediction model. Default pin and pout criteria were used for evaluation of the variables to be removed from and reentered into the equation. Selection for removal was based upon the likelihood

Table 16

Variables Investigated in a Logistic Regression

Categorical	Interval/continuous
Child sex	Mother's age
Case manager	Percentage married
Integrity check	Mother's income
Intervention group	Father's income
Referring agent	Mother's education
Previous counseling	Father's education
	Number of children
	Number of sessions attended
	Cancellations
	No-shows
	Time on waiting list
	Number of family members at wrap

ratio statistic, which is used to test the hypothesis that the equation coefficient of the variable is zero (i.e., it makes no contribution to the prediction model). It is believed to be more accurate than the Wald statistic, which tests the same hypothesis (SPSS, 1993b). Finally, missing data were inspected for any patterns, and because no clear trends were observed, all cases with missing data were included to maximize statistical power.

Findings

By the final step of the backward logistic regression procedure, three variables remained in the equation as the best contributors to the model. These variables were intervention group, father's income, and mother's education.

Next, the classification rate, model chi-square statistic, and goodness-of-fit statistic were inspected to determine how well the model fit the observed result.

Specifically, the resulting model correctly predicted 79.25% of observed cases. This is mildly better than chance and would be expected to decrease significantly with a cross-validated sample. The model chi-square model statistic was indicative of a statistically significant difference between the model with no variables and the model with variables, $\chi^2(5) = 19.62, p < .05$; thus, the likelihood of findings increased to a statistically significant amount with the use of the predictor variables. The goodness-of-fit statistic, however, was supportive of the conclusion that the model is not a good fit for the data, $\chi^2(47) = 46.1, p = .51$. That is, even though the predictive power of the model increased to a statistically significant amount with the addition of variables, the resulting model still was not a good or reliable predictor of parental compliance.

The unique contributions of variables to the model were also assessed. Results revealed that, although the three variables chosen by the backward procedure were better than other variables at predicting parental compliance, they still contributed only minimally to the prediction of parental compliance. Specifically, inspection of the \underline{R} statistic (i.e., the equivalent of a partial correlation with the association of other variables with compliance taken into account) revealed an essentially nil relationship between sociodemographic variables and parental compliance, when other variables were taken into account. In contrast, the \underline{R} for the intervention groups (in comparison to the control condition) was noteworthy ($\underline{R} = .05$), and the \underline{R} for the incentive condition (in comparison to the control group) was notable ($\underline{R} = .23$). The above findings are consistent with chi-square and Cramer's \underline{V} results indicating a sizable relationship between intervention and parental compliance.

Finally, to assess whether contribution to the model was statistically significant for the sociodemographic variables, Wald statistics were calculated; the Wald statistic tests the null hypothesis that a variable's equation coefficient (B) is zero. As indicated in Table 17, results are indicative of no statistically significant contribution to the model for sociodemographic variables. The contribution of the intervention variables, and in particular the incentive intervention, however, was statistically significant, $Wald = 5.92(1), p < .05$.

Acceptability of Interventions

A third purpose of this study was to investigate the relative acceptability of the interventions, as well as the relationship between acceptability and compliance. Analyses for these investigations are described below.

Acceptability Across Groups

To assess the relative acceptability of the interventions, an ANOVA comparing scores on the Benefits/Barriers Scale across intervention groups was performed. For this analysis, the prompting and control groups were collapsed into a single category, since the conditions were identical during the wrap session (i.e., the prompt came after the wrap session). As can be seen in Table 18, there is little difference between the groups with respect to acceptability. In addition, ANOVA results in Table 19 are indicative of a lack of statistically significant differences between the intervention groups in regard to acceptability, $F(3,49) = 1.9, p = .14$. Finally, the eta-squared effect size ($S_{\text{factor}}/S_{\text{total}}$)

Table 17

Contribution of Variables in the Final (Logistic Regression) Equation

Variable	B	S E	Wald	df	Significance	R
Overall intervention			6.156	3	.10	.05
High information	-.567	.562	1.015	1	.31	.00
Prompting	-.340	.610	.310	1	.57	.00
Incentive	1.58	.647	5.921	1	.02	.23
Father's income	.154	.168	.841	1	.36	.00
Mother's education	-.007	.006	1.06	1	.30	.00
Constant	-1.898	2.38	.634	1	.43	

Note. B = Unstandardized equation coefficient

Table 18

Means for Barriers/Benefits Scores Across Conditions

Condition	Barriers/benefit score
High information	20.3 (4.15)
Incentive	21.79 (4.47)
Prompt + control	19.3 (4.20)

Note. Standard deviation shown in parentheses

Table 19

Results of an ANOVA for Benefits/Barriers Scale Scores

Source	df	Sum of squares	Mean squares	F	F prob.
Between groups	2	119	59	2.79	>.05
Within groups	50	1062	21.3		
Total	52	1181			

of .10 was indicative of a small magnitude of association between barriers/benefits scores and group membership.

Association of Acceptability and Compliance

To investigate the association between acceptability and compliance, a partial point-biserial correlation (r_{pbis}) was run for barriers/benefits scores and parental compliance outcome. The point-biserial statistic is designed to measure the association between interval and truly dichotomous data (Borg & Gall, 1989). The influence of treatment was partialled, due to its observed relationship with compliance. Results were indicative of a nonsignificant zero-order correlation ($r_{pbis} = -.16$), as well as a nonsignificant partial correlation ($r_{pbis} = -.15$) between barriers/benefits scores and parental compliance.

DISCUSSION

In this section, results are discussed in reference to the three objectives of the study. First, the influences of the incentive, added information, and prompting interventions on parental compliance are discussed. Second, the association between sociodemographic variables and parental compliance is examined. Finally, the relative acceptability of the three interventions is discussed.

Intervention Influences on Parental Compliance

The primary purpose of the study was to investigate the differential influence of three interventions on parental compliance. Although the initial chi-square analysis resulted in no statistically significant differences between conditions, effect sizes were indicative of a clear, moderate association between parental compliance and group membership (Cramer's $\underline{V} = .34$). By visual inspection, it appeared that the incentive condition was clearly different from the control, as well as high info and prompting conditions, which all appeared equal. This hypothesis was confirmed by pairwise Cramer's \underline{V} computations, as well as an exploratory 2 x 2 chi-square test, which resulted in a statistically significant difference between the incentive group and all others, combined.

Incentive Versus Information and Control

The strength of the incentive strategy versus added information and control conditions is consistent with previous research and theoretical writings that support

behaviorally oriented strategies over nonbehavioral ones (Janz & Becker, 1984; Meichenbaum & Turk, 1987). For example, Parrish et al. (1986) concluded that a stated reward opportunity was more closely associated with parental compliance than a waiting list contingency; similar to the present study, they obtained a moderate effect size (Cramer's $\underline{V} = .33$). Likewise, Wasserman and Kassinove (1976) found an incentive but not a high information condition to be more influential than a control group on delayed parental compliance; they also obtained a notable effect size (Cramer's $\underline{V} = .41$).

The greater efficacy of the incentive strategy in relation to the added information strategy may be due to several factors. First, although added information theoretically increased understanding, which then increases the likelihood of compliance, the link between understanding and adherence is ambiguous. In contrast, the link between the provision of a specific motivation or plan and subsequent compliance seems much more direct and sturdy (Warzuk et al., 1987). The incentive intervention clearly taps into this latter process, unlike the added information intervention. Second, the added information intervention was relatively small (i.e., 3 to 4 minutes of verbal information) compared to the incentive condition (i.e., \$60 session). Results might have been different if the information intervention had been longer, involved brief role play or practice, or consisted of increased vigor on the case manager's part. Indeed, previous researchers who incorporated such aspects have obtained higher effect sizes than those who did not (e.g., Miller & Shank, 1986).

Incentive Versus Prompting

Previous research is equivocally supportive of the greater percentage of compliers within the incentive (71%) versus prompting (38%) interventions. Both are behaviorally based strategies, and so one might not expect a discrepancy. However, when examining effect sizes of previous studies, it appears that the link between incentive strategies and parental compliance (e.g., Cramer's $\underline{V} = .33$, Parrish et al., 1986; $\underline{V} = .47$, Reiss & Bailey, 1986) is stronger than the link between prompting strategies and parental compliance (e.g., Cramer's $\underline{V} = .38$, Reiss & Bailey, 1986; Cramer's $\underline{V} = .25$, Ross et al., 1993).

As it relates to the current study, there are at least two possible reasons for the superiority of the incentive intervention over the prompting intervention. First, incentive strategies simply may be more effective, overall, than prompting strategies at increasing parental compliance of clinic recommendations. As with the incentive versus information comparison, the incentive group may provide more of a specific motivation, or end goal, for the parent in relation to the prompting intervention. Second, the incentive condition in the current study may represent a more intense behavioral intervention among essentially benign alternatives. This conclusion is linked to the issue of external validity and the question of whether a particular incentive strategy is more effective than a particular prompting strategy within a particular situation. For example, although effect sizes for single letter or telephone prompt influences on compliance are smaller than those for single incentive interventions (Reiss et al., 1976), same-study comparisons of incentive strategies with multiple prompts have yielded minor adherence rate differences between the two (Reiss & Bailey, 1982).

Prediction of Parental Compliance

A second purpose of the study was to examine the association between sociodemographic variables and parental compliance. Results of a logistic regression were indicative of the intervention variable being a statistically significant predictor of parental compliance. However, with treatment accounted for in the equation, sociodemographic variables contributed nothing to the prediction of parental compliance.

The finding of no significant prediction by sociodemographic variables is important within the context of an ongoing controversy within the field regarding the association of these variables with parental compliance. Specifically, some researchers have found little, if any, relationship between compliance and such variables as income, education, and child's IQ (e.g., Cadman et al., 1984; Famularo et al., 1989; Joost et al., 1989; Nimgaonker & Farrell, 1988; Rivara, 1985). Other researchers, such as Webersinn et al. (1991), have supplied opposing evidence. They obtained an effect size of .35 (r_{pbis}) for the relationship between education level and parental compliance. Similar sized effects have been obtained for marital status, time on waiting list, and income level, among others (Dunst et al., 1988; Joffe, 1988; Nimgaonker & Farrell, 1988).

Given this division within the literature, it is difficult to make a definitive statement regarding the prediction of parental compliance by sociodemographic variables. One hypothesis is that certain sociodemographic variables do predict parental compliance in certain situations, but that the current study simply is not one of those situations. Inasmuch as previous investigations of sociodemographic variables have pertained

exclusively to appointment keeping, results of the current study are seen as supporting this view. In addition, it may be that sociodemographic variables, in general, are not strong or consistent predictors of parental compliance, and that the most efficacious, nonintervention influences consist of alternative variables (e.g., client-therapist interactions). Jones and Caldwell (1981), for example, correctly classified 86% parents into complied or not complied groups based on whether parents felt like they attended to, or “heard” suggestions, during the final recommendation session. Replication is needed to determine whether study results are part of a broader inability of sociodemographic constructs to predict compliance or whether they fail to predict the scenario presented by the present study.

Acceptability of the Interventions

A third purpose of the study was to explore the relative acceptability of the high info, incentive, and prompting interventions. No specific hypotheses were made regarding this question due to the minimal amount of previous research. Results were indicative of neither statistically significant differences, nor a strong relationship, in regards to acceptability and treatment. This outcome is consonant with studies supporting equal and high acceptability across interventions of minimal intrusion (Reimers et al., 1987). Although there is support for greater acceptability with interventions of decreased time and effort (Witt, 1986), the interventions used in this study did not alter what was required of parents. Rather, the interventions were aimed more at changing the decision-making process involved prior to compliance. Thus, all

the interventions worked theoretically in the same manner. Specifically, the high info intervention was aimed at increasing the understanding level of decision making, which precedes acceptability, which then precedes compliance (Reimers et al., 1987); and the incentive and prompting interventions were aimed at providing benefits and cues, which influence perceptions of a recommendation and, thus, subsequent compliance (Rosestock, 1974).

Another compelling explanation for results is the presence of a low ceiling and narrow range of acceptability scores. Specifically, 80% of scores were within one standard deviation of the sample mean. This leads to the possibility that the nature and intensity of the recommendation and interventions yielded high acceptability scores across all conditions, and thus disallowed the variance needed to truly explore differential effects of interventions on acceptability. This is a measurement and ecological concern, and future research is needed to discern whether and to what extent compliance-targeted interventions are associated with acceptability.

CONCLUSIONS

The results of this study support the conclusion that offering parents a reward for compliance with a simple post-evaluation recommendation enhances subsequent adherence to that advice. In addition, offering an incentive for compliance appears to be more efficacious than providing additional information or calling several days with a reminder. Results also support the conclusion that, once the effect of treatment is taken into account, sociodemographic variables do not aid in the prediction of parental compliance. Lastly, parents do not change their perceptions of acceptability, regarding a simple clinic recommendation, according to exposure to an incentive, added information, or prompting intervention. With these conclusions in mind, implications for clinical practice, limitations of the study, and implications for future research are discussed in the following sections.

Implications for Clinical Practice

The results provide some means for generating practical information related to parental compliance and clinical practice. First, it would appear that offering a reward to parents for compliance of a simple recommendation may be more effective than either offering a small amount of extra information or prompting the parent one time by phone. This makes intuitive sense, but probably is not followed because incentive offering can be more costly and time-intensive than prompting or education interventions. Furthermore, clinicians may be concerned about whether patients would come to expect rewards for

what should be standard behavior (i.e., heeding advice that is helpful to their child).

Thus, clinics avoid behaviorally based approaches. It is noted, however, that this fear is undeserved because the variety of possible incentive programs for parental compliance is quite high. For example, besides offering expensive rewards (e.g., a free treatment session), a less costly incentive could be offered (e.g., a lottery ticket, a community token, or a fast food coupon). Where compliance is important, these alternatives have been notably successful (e.g., Reiss & Bailey, 1982).

Second, within the current study there were no significant sociodemographic predictors of parental compliance, and within the literature, there are no consistent sociodemographic predictors of compliance. Thus, clinicians should not abide by any rigid rules, regarding sociodemographics, of predicting who will and will not comply. Accordingly, initial efforts at providing services and recommendations should be given equally across patients.

Third, clinicians should be aware of the low rate of compliance (43% current sample) with simple recommendations given during the final recommendation session. Without considering that parents may comply with only two out of every eight simple recommendations, resources spent on formulating and presenting recommendations may be utilized inefficiently. Accordingly, clinicians need to monitor what recommendations they give, decide which ones are most important, and implement more intensive efforts to ensure compliance.

This decision process will involve the determination of which recommendations are most desirable to parents. As suggested by results of the present study, acceptability

ratings may not always predict subsequent compliance. However, it still is crucial to discern whether parents see the recommendations as germane and important to their situation. For the current study, although self-help educational recommendations would seem to be appropriate, given solid research on the benefits of such strategies on parental attitude and coping (Barber, 1992; Gaudet & Powers, 1989), research suggests that the education parents are really seeking is face-to-face contact, with the professional supplying most of the energy within the exchange. Supportive of this argument are results from Rosenbaum, King, and Cadman's (1992) study. These researchers found that 93% of the parents surveyed admitted they wanted providers to "provide initial and continuous explanations about the child's condition--its causes, course, and prognosis...[and] act as resource for questions about condition and treatment" (p. 89). Thus in the child clinic situation, a recommendation for calling back a case manager to discuss problems in treatment implementation may be more highly complied with than reading a book or watching a video that provides essentially the same information.

Limitations of the Study

Internal Validity

The internal validity of the study is strong. Although experimenter effects are often a threat in an applied experimental investigation, this risk was controlled for in the current study. This statement is made in consideration of the straightforward nature of the interventions, the favorable results of treatment integrity checks, and lack of a distribution of case managers, which would support a plausible rival hypothesis about

results. Another possible internal validity threat involves the use of an essentially experimental measurement for assessment of perceived acceptability (i.e., Barriers/Benefits Scale). Due to the lack of research regarding this instrument, as well as its lack of sensitivity in tapping the construct of acceptability in the current sample, an instrumentation validity threat cannot be ruled out. This limitation, however, does not relate to the primary purpose of the study, which was to assess the influence of specific interventions on parental compliance.

Ecological Validity

Ecological, or external, validity represents “a potential specificity of the effects of X to some undesirably limited set of conditions” (Campbell & Stanley, 1966, p. 16).

The current study contains several important factors that may influence the generalizability of findings. These factors are discussed with reference to sample characteristics, sample size, the control group, and intervention strength.

Sample characteristics. Results of the study will generalize best to samples with similar characteristics. Specifically, the current sample most accurately represents primary Caucasian, middle socioeconomic status, fairly well educated, married, rurally located parents in their late thirties who sought treatment voluntarily for their male child during the time period of October to December. In addition, these parents received an average of 3.5 sessions, were kept on the waiting list for approximately 4 weeks, and were rendered services by both interns and licensed psychologists. Clearly, replication is needed on a broader variety of subjects in order to confidently generalize findings to

other populations and treatment scenarios.

Sample size. Sample size was acceptable for analyses performed but it afforded high Type II error risk. Thus, with reduced power, the probability was increased that the null hypothesis (no difference between interventions) would be wrongly accepted, when, in fact, the test hypothesis (difference between interventions) was true. This decreased power is believed to have resulted in the lack of statistically significant findings in the initial analysis. In addition, even exploratory analyses, with collapsed cells, are subject to the Type II error. Thus, by lessened access to the real population parameters through reduced sample size, questions remain as to the real population parameters and to which population the present studies results really belong (i.e., distribution of equal intervention compliance percentages versus another distribution). The strength of this argument can be seen through an exploratory analysis of the 2 x 2 chi-square of incentive group versus all others, combined. With a sample size of .53, and a smaller cell size for the incentive group, the significance level was .013. Contrastingly, for a sample size of .78, and equal cell sizes for both groups, the significance level was .0006. Replication is needed to further clarify the present results and to shed light on true population characteristics.

Control group. One minor threat to external validity deals with the notion of control group versus attention control (Borg & Gall, 1989). Specifically, the control group used in the current study was actually a form of mild intervention, or “comparison” group (Borg & Gall, 1989, p. 675). This is because the recommendation was standardized to allow for control of internal validity threats, and it involved extra actions (e.g., the provision of a map). Thus, conclusions may be limited to whether the relevant

interventions are better than a comparison group, but natural control group, at enhancing parental compliance.

Intervention strength. Another threat involves the issue of intervention intensity. Specifically, the reason why the nonincentive conditions effected no greater parental compliance than the no-intervention condition may be that the former were simply too weak. Previous researchers have supported the connection between strength of the intervention and magnitude of effect. For example, Warzuk et al. (1987) obtained an effect size of .13 for an added information intervention involving a scripted reading of material by a secretary. In contrast, Miller and Shank (1986) obtained a Cramer's \underline{V} effect size of .52 for an education intervention involving a 15- to 30-minute one-on-one session with a nurse. Similarly, Meyers et al. (1983) obtained a Cramer's \underline{V} effect size of .43 for a simple telephone prompt; however, when additional prompts were added (i.e., letter, home visit) the magnitude of association increased to .55 (Cramer's \underline{V}). Thus, regarding current results, great care must be given in making a general statement about the effectiveness of added information and prompting interventions. Specifically, in the current study, information and prompting interventions of mild strength were no better than no intervention at all in influencing parental compliance of a simple clinic recommendation.

Implications for Future Research

The findings of this study have several implications for future research. First, this study should be replicated with a larger sample size in order to gain confidence in

conclusions made regarding intervention effectiveness. Variation in sample should include different geographical and sociodemographic characteristics so as to improve ecological validity. Second, there remains a dearth of applied investigations regarding parental compliance of treatment recommendations given at a child evaluation center (Parrish et al., 1986). Research in this area should continue with investigations into different targeted compliance behaviors, different compliance-targeted interventions, and different strengths of each. For example, a follow-up to the current study might be a literal replication with increased sample size and the addition of a behavioral combination condition, because these strategies may be most effective overall (Reiss et al., 1976; Yokley & Glenwick, 1984). Third, further investigation is needed into the precise mechanisms by which parental compliance is enacted. The current study is supportive of no clear intermediate effect of acceptability on compliance with a simple, nonintrusive recommendation. It will be important to know for which cases this finding is and is not applicable. Lastly, the above suggestions are crucial for the further development of research into parental compliance of clinic recommendations. Increased knowledge in this area will maximize the effectiveness of health care professionals, and, at the same time, show heeding of Witt and Elliot's (1985) caution that a treatment unused really is no treatment at all.

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APPENDICES

Appendix A:

Perceived Barriers/Benefits Scale (modified)
(From Human and Teglası (1993))

Perceived Barriers/Benefits Scale (modified)
From Human and Teglassi (1993)

Please circle the letters which indicate the extent of your agreement with the statement.
(SA=Strongly Agree, A=Agree, N=Neutral, DS=Disagree, SD=Strongly Disagree)

1. The discussion of the results from the evaluation of my child made sense to me in terms of my own observations of my child.

SA A N D SD

2. I agree with the conclusions which were drawn from the testing.

SA A N D SD

3. Some of the results of the testing were not clear.

SA A N D SD

Answer the following questions in relationship to each recommendation.
Recommendation I. _____

1. This recommendation seems likely to help solve my child's problem.

SA A N D SD

2. The recommendation makes sense in terms of the test findings.

SA A N D SD

3. The recommendation seems somewhat unfair to other members of our family.
(For example, gives too much attention to one child).

SA A N D SD

4. I am not sure that I understand how to follow this recommendation.

SA A N D SD

5. This recommendation would be hard for me to follow.
- SA A N D SD
6. I'm concerned that I may not have the resources or skills to follow this recommendation. (For example, may not have a car).
- SA A N D SD
7. This recommendation will interfere with my child's routine in a negative way.
- SA A N D SD
8. This recommendation would change the way we usually do things in our family.
- SA A N D SD
9. This recommendation would be difficult to follow consistently over an extended period of time.
- SA A N D SD

Appendix B:
Parent Consent Form

Parent Consent Form

Dear Parent,

Thank you for your participation in this investigation aimed at increasing the quality of recommendations given to parents following assessment of their child. Study results will be used to enhance Clinical Services evaluation and treatment procedures.

The benefits of your involvement include receiving added discussion time with the case coordinator during the final recommendation (“wrap”) session and receiving follow-up calls subsequent to the final recommendation session. The primary risk or disadvantage of participation include having to be available for one or two brief phone conversations subsequent to the wrap session. Also, your wrap session may be audio-taped for data collection purposes; however, these audio tapes will be erased within one week following the wrap session.

Confidentiality will be strictly adhered to during the study and both your child’s and your name shall be kept anonymous. That is, information gathered from you will take the form of numbers within a data base, with no personal identifying information included.

By signing this document, you acknowledge understanding the general benefits and risks of the study. In addition, let it be known that you have the right to terminate your participation at any point in time without prejudice to you or your child.

Thank you for your participation, and if you have any questions, please contact Lani Van Dusen (797-1460) or Shannon Pratt (797-2027).

Parent Signature _____ Date _____

Parent Signature _____ Date _____

Witness Signature _____ Date _____

VITA

Shannon John Pratt

9032 - 48th Place
College Park, MD 20740
(301) 982-2429

EDUCATION

- 1997 PhD in Clinical, Counseling and School Psychology Combined Program
(Professional-Scientific Psychology - APA approved)
Utah State University, Logan, Utah
- 1992 MS in Counseling Psychology
Utah State University, Logan, Utah
- 1988 BA in Psychology, Business minor
Phi Beta Kappa, Magna Cum Laude
University of Richmond, Virginia

CERTIFICATIONS

- 1995 School Psychologist Certificate, State of Idaho
- 1994 Nationally Certified School Psychologist (NCSP)
- 1993 School Psychologist Certificate, State of Utah

THESIS AND DISSERTATION

- Dissertation: Parental Compliance of Psychological Recommendations
Following an Outpatient Child Assessment
Chairperson: Lani Van Dusen, PhD
- Thesis: The Influence of Social Support on the Stress Level of Parents of
Children with Disabilities
Chairperson: Richard Roberts, PhD

PROFESSIONAL EXPERIENCE

Teaching/Research Assistant, Utah State University Psychology Department (September, 1995-Present)

Assist professor with graduate assessment courses, including Intellectual Assessment (Psy 631), Advanced Assessment (Psy 641), and Assessment of Disturbed Children and Adolescents (Psy 689). Supervise projects and coordinate activities for students in a Rural School Psychology Training Program. Assist with practicum supervision of School Psychology students.

Psychological Examiner/Therapist, Clinic Services

Center for Persons with Disabilities--A University Affiliated Program
Utah State University (July 1993 to August 1995)

Responsible for case management within a multidisciplinary setting (e.g., physician, OT/PT, speech/language therapist). Conducted parent and child evaluations and follow-up treatment for individuals displaying a variety of psychiatric disorders, including Attention Deficit Hyperactivity Disorder, Conduct Disorder, Autism, learning disabilities, Tourette's, Enuresis and Encopresis, depression, anxiety, and Mental Retardation (mild to severe). Responsible for design and administration of group treatments for children and parents (e.g., social skills training, parent management). Supervised doctoral level practicum students.

School Psychologist, Cache County School District

Logan, Utah (September 1992 to June 1993)

Responsible for case management of children served by the special education multidisciplinary team (e.g., speech/language therapist, educational specialist, principal). Led IEP team meetings. Provided teacher and parent consultation on variety of psycho-social problems, including classroom off-task behavior, school refusal, anxiety/phobic reactions, social skills deficits, assignment incompleteness, and associated home difficulties. Supervised by NCSP psychologist.

Volunteer counselor for children's group

Citizens Against Physical and Sexual Abuse, Logan, Utah, (Spring, 1993)

Assisted in providing a therapeutic, structured, environment for sexually and physically abused children, once per week. Planned and conducted nonintrusive treatment oriented activities (e.g., drawing, "check in" discussions, sports activities, social skills training).

Psychometrician, Cache County School District

Logan, Utah (September 1991 to June 1992)

Conducted parent interviews, child testing, classroom observations, and IEP team consultation for children eligible for special education assistance. Supervised by NCSP psychologist.

Teaching Assistant, Psychology Department (Educational Psychology)

Utah State University, Logan, Utah (September 1989 to June 1991)

Taught lab sections and periodically lectured for full class. Course content dealt with the use of cognition, motivation, and social learning to enhance teacher effectiveness.

PROFESSIONAL EXPERIENCE (continued)**Volunteer counselor for Helpline crisis/referral hotline**

Logan, Utah (Fall, 1989 to Fall, 1990)

Provided crisis intervention and referrals for callers struggling with such issues as Post Traumatic Stress Disorder, anxiety, depression, and relationship deficits.

SUPERVISED EXPERIENCE**Co-therapist trainee, Utah State University, Department of Psychology**

(September, 1993 - May 1994)

Assisted in group treatment of female victims of childhood sexual abuse. Foci included educating clients on Multiple Personality Disorder and Post Traumatic Stress Disorder symptoms, managing symptomatology within the context of personal relationships, and providing a safe nurturing environment for disclosure and validation. Therapy was Gestalt in orientation. Supervisor: Carolyn Barcus, EdD.

Practicum Student, University of Utah Neuropsychiatric Institute

Salt Lake City, Utah (Summer, 1994)

Conducted evaluation and treatment for inpatient and day-treated children ages 5 to 10. Sample conditions included Major and mild Depression, anxiety, Tourette's, Attention Deficit Disorder, Pervasive Developmental Disorder, Post Traumatic Stress Disorder, Obsessive Compulsive Disorder, Oppositional Defiant Disorder, and Intellectual Handicap. Therapy was play based with emphasis on behavioral techniques and the creation of a stable, nurturing, environment. Participated in client rounds and assisted social worker with family sessions. Supervisor: Carol Ballou, PhD.

Practicum Student, Psychology Department Community Clinic

Utah State University, Logan, Utah (September 1992 - March 1994)

Conducted assessment and therapy for a variety of clients; was responsible for case presentations. Sample conditions included Major Depression, Agoraphobia, Generalized Anxiety, marital stress, Conduct Disorder, child management problems, Schizotypal Personality Disorder, Eating Disorders, and Post Traumatic Stress Disorder. Therapy orientations were primarily cognitive-behavioral and Rogerian. Primary supervisor: Jay Skidmore, PhD.

School Psychologist, Cache County School District

See description under "Professional Experience."

Psychometrician, Cache County School District

See description under "Professional Experience."

Practicum Student, Utah State University Counseling Center

(September 1991 - August 1992)

Conducted assessment and therapy for college-aged adults on a campus of approximately 20,000. Sample conditions included academic problems, Histrionic

SUPERVISED EXPERIENCE (continued)

Personality Disorder, marital distress, child management problems, Major and Mild Depression, Post Traumatic Stress Disorder, Generalized and specific Anxiety, and body image problems. Therapy orientations included Gestalt, cognitive-behavioral, personal change, family systems, and Transactional. Attended workshop on use of Eriksonian methods of hypnosis and relaxation in therapy. Responsible for case presentations. Co-led group therapy focusing on interpersonal relationships. Supervisors: Mary Doty, PhD., and Dave Bush, PhD.

Practicum Student, Center for Persons with Disabilities

Utah State University, Logan, Utah (September 1990 - June 1991)

Conducted assessments and therapy for children and their families within multi-disciplinary setting. Sample conditions included Attention Deficit Disorder, Conduct Disorder, Autism, learning disabilities, and depression. Responsible for case presentations and participated in evaluation and treatment seminars. Supervisor: Phyllis Cole, PhD.

Psychology Practicum Student, Psychology Community Clinic

Logan, Utah (September 1989 - June 1990)

Conducted intake interviews, administration and interpretation of tests, report writing, and individual therapy. Clients included couples, and families; Orientations included cognitive-behavioral, Rogerian, Gestalt, and Transactional. Supervisor: Damian McShane, PhD.

Post-undergraduate intern/student, Broughton Psychiatric Hospital

Morganton, North Carolina (Summer, 1988)

Assisted with group sessions on adult ward. Exposed to adolescent ward, and worked with geriatric clients having Alzheimer's and Major Depression. Wrote SOAP notes regarding contacts. Gained general knowledge of administrative workings of a psychiatric hospital.

SUPERVISING EXPERIENCE**SCHOOL PSYCHOLOGIST, WESTSIDE SCHOOL DISTRICT**

See description under "Professional Experience."

Supervise a Master's level School Psychology student seeking state and national certification.

Teaching/Research Assistant, Utah State University Psychology Department

See description under "Professional Experience."

Supervise projects for students in a Rural School Psychology Training Program. Co-supervise Masters level School Psychology students on practica.

Psychological Examiner/Therapist, Clinical Services

See description under "Professional Experience."

Supervised doctoral level practicum students on broad variety of child and family cases.

AWARDS AND HONORS

- 1995 APA Dissertation Grant Award (Submitted Fall 1995)
- 1993-4 USU Graduate Student Representative for National Association of School Psychologists
- 1990 Department Tuition Waiver (Out of State)
- 1989 Phi Beta Kappa Honor Society, Magna Cum Laude, University of Richmond

AFFILIATIONS

- American psychological Association (Student Affiliate)
- American Psychological Association, Division 13 (School Psychology)
- National Association of School Psychologists
- Utah Association of School Psychologists

PRESENTATIONS, PUBLICATIONS, AND GRANTS (Accepted, Submitted)

- Merrell, K., Jentzsch, C., Pratt, S., Walters, A., Gimpel, G., & Laurent, J. (March, 1996). Practical school-based prevention and intervention techniques for childhood depression. Submitted for seminar presentation at the annual convention of the National Association of School Psychologists. Atlanta, Georgia.
- Pratt, S., & McClun, L. (March, 1996). Social skills training for ADD children in the school setting. Submitted for poster presentation at the annual convention of the National Association of School Psychologists. Atlanta, Georgia.
- Pratt, S. (May 20, 1995). Parental teaching of social skills to children. Presentation on the Utah Public Radio series, Parent Management. Logan, Utah.
- Neece, J., Pratt, S., & Crowley, S. (April, 1994). The utility of measurements used in the diagnosis of attention deficit disorder and oppositional defiant disorder. Poster presentation at the annual convention of the Rocky Mountain Psychological Association. Las Vegas, Nevada.

PRESENTATIONS, PUBLICATIONS, AND GRANTS (continued)

- Pratt, S., Forbush, D., & Merrell, K. (March, 1994). The effectiveness of non-medical group-based interventions for childhood depression. Poster presentation at the annual convention of the National Association of School Psychologists. Seattle, Washington.
- Merrell, K., & Pratt, S. (April, 1993). Best practices in rural school psychology. Poster presentation at the annual convention of the National Association of School Psychologists.
- Merrell, K., Pratt, S., Forbush, D., Jentsch, C., Nelson, S., Odell, C., & Smith, M. (Fall, 1994). Special education, school psychology, and community mental health practice in rural settings: Common problems and overlapping solutions for training. Rural Special Education Quarterly, 13(4), 28-36.
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REFERENCES

Lani Van Dusen, PhD
 (Dissertation Chair)
 Department of Psychology
 Utah State University
 Logan, UT 84322-2810
 801/797-1402 (1460)

Phyllis Cold, PhD
 Director of Clinical Services
 Center for Persons with Disabilities
 Utah State University
 Logan, UT 84322-6800
 801/797-1989 (2002)

Kenneth Merrell, PhD
 Director of School Psychology Program
 Director of Training, Professional-Scientific
 Doctoral Program
 Department of Psychology, Utah State
 University
 Logan, UT 84322-2810
 801/797-2034 (1460)

Pat Truhn, PhD
 Coordinator, Community Family
 Partnership Project
 Staff Psychologist, Clinical Services
 Center for Persons with Disabilities
 Utah State University
 Logan, UT 84322-6800
 801/797-3822 (2002)