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AUTHOR Zucker, Robert A.; And Others
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ABSTRACT

This paper reviews several studies on preschoolers' perceptions of alcohol and drug use. The studies make five main points: (1) the process of socialization to alcohol and drug involvement begins earlier than adolescence, and involves the ability to identify alcohol and drugs by name, class, and smell; (2) the process of socialization involves children's ability to articulate differences between alcohol and drugs, and other substances which only adults use; (3) knowledge of the rule structure about alcohol use already exists during the preschool years; (4) some preschoolers are able to articulate a belief structure about drug effects and describe expectancies about their future use and their like or dislike of drug substances; and (5) individual differences in children's learning about alcohol and drugs are related to differences in cognitive capacity and exposure to alcoholic beverages in children's homes. Children's knowledge of drugs and alcohol is characterized as a cognitive schema about use which (1) involves recognizing a special class of objects having particular smells; (2) is governed by a rule structure, perceived to vary for age and sex; (3) disallows children's use of substances; and (4) allows for incorporation of substance use into children's anticipated future behavior and sense of self as adults. A list of 22 references is provided. (BC)

The Development of Cognitive Schemas About Drugs Among Preschoolers1,2

Robert A. Zucker, Hiram E. Fitzgerald

Michigan State University

Robert B. Noll

Children's Hospital Medical Center

University of Cincinnati

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RUNNING HEAD: Cognitive Schemas About Drugs

June 1991

ABSTRACT

Reviews work which demonstrates that the process of socialization to alcohol/drug involvement begins as early as the preschool years; that it involves learning about drugs, being able to articulate knowledge of the culture's rule structure governing use, being able to articulate a differentiated belief structure about drug effects, and a set of expectancies about planned use and like/dislike of these substances. The complexity of this knowledge base, and the rapidity of developmental changes in some aspects of its content suggest that it is best characterized as a cognitive schema that feeds working models of self, others, and self-other relationships which can be anticipated to play a significant role in structuring the ontogenesis of drug involvement. The rudiments of a schema for alcohol can already be identified within the first three to four years of life, and elements in the process relating to its contextual, temporal and structural organization can also be identified at this young age.

INTRODUCTION

Webster's defines youth as "the part of life that succeeds childhood; the period usually from puberty to maturity." It is this developmental time frame that is still most commonly viewed as the place where significant alcohol involvement starts (cf. Kandel, 1978, Jessor & Jessor, 1975). A number of lines of evidence now indicate that this process has antecedents considerably earlier than the teen years, and that the process involves considerably more than peer influences. For one, perhaps because of secular trends in the society (Reich, Cloninger, Van Eerdewegh, Rice & Mullaney, 1988), age of onset for both alcoholism and also for first regular experience of drinking (Flett, Casswell, Brasch & Silva, 1987; Johnson, Bachman & O'Malley, 1988) appears to be declining. For another, even without considering when the first "real" drink begins, a number of studies have now demonstrated that children's awareness of alcoholic beverages as special substances, their ability to recognize and name them, their ability to recognize the common cultural rules of use, and their ability to formulate expectancies about what drinking will produce in the way of cognitive and behavioral effects can be detected well before adolescence (Gaines, Brooks, Maisto, Dietrich & Shagena, 1988; Miller, Smith & Goldman, 1990; Noll, Zucker & Greenberg, 1990; Zucker & Noll, 1987). In addition, even while acknowledging the importance of peer influences during later childhood and early adolescence, some of this developmentally earlier focused work indicates that family patterns of heavier or problematic alcohol use are already to a significant degree impacting the child's emerging conceptions of alcohol use well before adolescence.

This paper reviews this work from our own group, and discusses its implications for an emerging theory of socialization to alcohol involvement. In particular, we review evidence that makes five points:

(1)) the process of socialization to alcohol/drug involvement begins much earlier than adolescence, and it involves learning about drugs (i.e., being able to identify them by name and smell and class);

(2) the socialization process involves being able to articulate differences between these substances and other "adult-use" substances in the child's environment;

(3) knowledge of the primary rule structure about alcohol use that exists in the adult culture already can be detected during the preschool years;

(4) some children in this age range can already begin to articulate a belief structure about drug effects, and describe expectancies about planned use and like/dislike of these substances;

(5) individual differences in precocity of such learning can be tied to both cognitive capacity differences and to differences in exposure to alcoholic beverages within the child's home environment.

The last part of the paper focuses on the attributes of schemas and makes the point that the evidence now in hand, when taken together, articulates the very early beginnings of socialization to drug involvement. These data also emphasize that this process is more complex than has previously been acknowledged. The later emergence of

drug or alcohol expectancies is one part of this process, but the complexity of the content of preschoolers' knowledge about alcohol and other drugs indicates that the cognitive framework upon which such expectancies are built has already been schematized in a rudimentary way even before children have started formal schooling.

EARLY LEARNING ABOUT ALCOHOL AND OTHER DRUGS

The Noll et al. (1990) study forms the primary base of evidence indicating that alcohol and other drugs, as a class, are known and identified during the preschool years. This study was carried out on a community sample of children ranging from 31 to 69 months in age. Using odor stimuli from a variety of substances including alcoholic beverages, but also from some more common ones in the child's environment (e.g. apple juice, play doh), children were given two trials to "engage in a smelling game" and identify the substances. The first trial only involved smelling and thus was based solely upon exposure and recall knowledge; the second provided cuing by way of photographs of the substances. After a successful identification was made, additional questions inquired about the children's knowledge of who used the substance, whether the child liked it or not, and whether or not they planned on using it in the future.

FIGURE 1 ABOUT HERE

Figure 1 summarizes the major results of this study. Older preschoolers did significantly better than younger ones, photographic cues helped performance, and identification was less successful for the alcohol and cigarette stimuli than for the uncontrolled-use substances. Nonetheless, a substantial proportion of these preschoolers could already correctly identify the drug stimuli. To put these findings in a normative perspective, on the uncued trial 57 percent of the older children correctly identified either beer, wine, or whiskey, whereas only 21 percent of the younger children were successful. But across both trials, 89 percent of the older children were able to correctly identify at least one of the alcoholic stimuli (most often beer), as were 69 percent of the younger children.

KNOWLEDGE OF THE CULTURAL RULE STRUCTURE FOR ALCOHOL USE

Another task has been used by our group to get at this issue (Greenberg, Zucker & Noll, 1985; Zucker, 1987). A series of pictures of common situations (such as Thanksgiving, lunchtime, a picnic, watching television at home) are presented to the children; each of the situations is one where some type of beverage consumption may be expected, and where each of the figures has a glass or can either in their hand or by their side. Children are then asked what each figure would like to drink, choosing from an array of ten beverage photographs, 5 of which are alcoholic and 5 of which are not. The

figures in each of the pictures have been systematically varied in gender and age (adult vs. child), so as to be able to elicit the rule structure the child uses in assigning an alcoholic or nonalcoholic beverage choice. These findings have already been summarized in Greenberg et al. (1985) and in Zucker (1987). Figures 2 and 3 (from Zucker, 1987) summarize the data.

FIGURE 2 AND FIGURE 3 ABOUT HERE

Here also the findings are quite clear, and demonstrate that even in the 3 to 5 year old age range, some of the core rule structure pertaining to the use of alcoholic beverages is already in place. The children already know that this is an age graded set of activities, in that they assign more alcoholic beverage choices to the adult stimulus figures and fewer to the child stimuli (Figure 2). They also indicate their knowledge of the gender differentiation existing for adult drinking behavior. As shown in Figure 3, they pick more alcoholic beverages as the drink of choice for the adult male stimuli than they do for the adult female stimuli; and they appropriately make no gender differentiation for the child figures.

EMERGENCE OF A DIFFERENTIATED BELIEF STRUCTURE ABOUT ALCOHOL AND OTHER DRUGS

An emergent differentiation of the rule structure related to these substances is suggested by other of our data. How might such differentiations of class membership be demonstrated? We approached this question with the view that evidence needed to be present showing that the drug concept was similar in some ways to other concepts, yet different in other ways. Differences in notions about who can acceptably use alcohol, as well as differences in liking for alcohol, can be found not only when we contrast attitudes about alcohol against child or unrestricted use substances (like play doh and popcorn), but also when we contrast how alcohol is regarded against other age graded, primarily adult, but uncontrolled use substances in the common social environment (like coffee and perfume).

The smell task study discussed earlier (Noll et al., 1990), contains other information relevant to this point. Differences in notions of acceptable use for the drug items (i.e., the controlled use substances) were found not only in comparison to the universal use substances (like popcorn and apple juice) but also in comparison to the nondrug adult-use substances of perfume and coffee. That is, both of these adult-use substances were reported to be used significantly more often by adults only (see Noll et al., 1990, Table 2, p. 1524). In addition, a pattern of differential liking for the drug substances was reported as compared to the nondrug adult use substances (also see Noll et al., 1990, Table 2). Only about one-third of the children report liking the drug substances, while almost two-thirds of them like the noncontrolled adult use substances. Thus, the simple awareness that a

substance is primarily for adult use does not automatically imply a linkage to their dislike for the substance. In other words, a differentiated pattern of understanding about use structure of adult-use substances, and a set of differential affects related to drugs as a specialized object class, can be detected even in the preschool years.

Last, despite this majority view of dislike of drugs, other data show that a substantial subset of preschoolers still indicate that they anticipate using alcohol when they get older. Although these data are much more tentative, within a heavily blue-collar sample of preschoolers (mean age = 4.5) half of whom came from homes with an alcoholic father and half without, fully 90 percent of the children reported a positive intention to drink when they got older (Noll & Zucker, 1983).

INDIVIDUAL DIFFERENCES IN THE EMERGENCE OF A COGNITIVE STRUCTURE ABOUT ALCOHOL

Given that there are substantial variations in preschoolers' ability to both recognize alcoholic beverages by smell and to correctly identify the culturally appropriate schemas for alcohol use, we also have begun to examine factors that might account for such variation. The data we have already presented show that age is a major factor, but given that age is simply a proxy indicator for the operation of other influences, we have looked further. One hypothesis for individual differences in awareness of cultural rule structure for alcohol is that cognitive capacity differences account for some of the variation. This was tested by examining the correlation between the Peabody Picture Vocabulary Test-Revised (Dunn & Dunn, 1981) age equivalency score and the child's ability to successfully discriminate between adult and child stimuli in terms of alcoholic beverage choice (Greenberg, Zucker, & Noll, 1985; Greenberg, 1985). Age was significantly related to the ability to make this discrimination (r = .26, p < .01), but so was receptive vocabulary age equivalency level (r = .31, p <.001). The age effect disappeared when the Peabody age equivalency score was partialled out but the receptive vocabulary age equivalency relationship remained significant even when the effects of age were removed (r = .19, p <.05). It should be noted however that cognitive capacity differences independent of age were not related to children's ability to successfully identify the beverage stimuli (that is, correctly identify the photographs). Here the zero order relationship was positive and significant, but disappeared when the effect of age was partialled out.

Another hypothesis for some of these individual difference effects is that children are differentially exposed to information about alcoholic beverages. At this young age such exposure would most likely be anticipated to occur in the home. To test this possibility we examined the relationship of parental alcohol consumption levels to children's success on the smell task (cf. Noll et al., 1990). The hypothesis was confirmed; success at recognition was related to heavier parental drinking, and to the use of alcohol for escape reasons. Given that media exposure, via television, cannot explain this relationship

as it pertains to accuracy on the smelling task, these data are best interpreted as part of an in home socialization process pertaining to the acquisition of a cognitive structure about drugs as a class of objects (e.g. Leigh, 1989; Goldman, 1991).

AN ORGANIZING FRAMEWORK FOR THE DATA

Within the framework of much current alcohol research the data we have presented would be understood as relating to the early development of alcohol expectancies. The notion of expectancy includes both an action and an object, as well as a rule structure about the contexts where the action-object relationship should and should not be enacted. However, in order for such cognitions to operate one must also specify a rule structure pertaining to the attributes of the object (or, in the present instance, the substance), as well as deal with the issues of how such information is processed (encoded, retrieved, modified). On these grounds we suggest that the notion of cognitive schema is a broader one, which encompasses the expectancy concept, but also embraces these other attributes. To quote Ulric Neisser:

"A schema is that portion of the entire perceptual cycle which is internal to the perceiver, modifiable by experience, and somehow specific to what is being perceived. The schema accepts information as it becomes available at sensory surfaces and is changed by that information; it directs movements and exploratory activities that make more information available, by which it is further modified." (Neisser, 1976, p. 54)

More generally, as cognizing organisms, children are developing cognitive schemas3 not only with respect to linguistic structures and physical objects, but also about social objects and social behavior (cf. Dodge, 1986). The objects in the environment provide the affordances for perception (see Gibson, 1966). Attention to objects or events in the environment, facilitated by their affective connection to salient social objects (such as mothers and fathers when young, peers when older), and the reinforcement the child receives for appropriate behavior as defined by the reinforcing social object(s), all facilitate the construction of schemas or internal working models that guide future action. As such models of the self and others become more highly organized, they may selectively affect the nature of information that is incorporated into or excluded from the child's schematic representation of the caregiver's behavior. As Bretherton (1987) points out in her analysis of the intergenerational transmission of working models of relationships, the construction of inadequate working models may lead to maladaptive coping strategies as a result of defensive exclusions and biased processing of events. Thus, the young child's affectional tie to his primary caregivers may force defensive exclusion of his alcoholic parent's antisocial behavior and negativism, while simultaneously incorporating biased processing of instances of parental nurturance (cf. Bretherton, 1987). It is not implausible that biased processing may also take place pertaining to the child's schemas about how adults use alcohol, and about the positive vs. negative effects of such use. Thus, the child who can articulate the negative

aspects of alcohol use/abuse in the abstract, may simultaneously maintain an expectancy that he or she will use alcohol in the future, and perceive such use as desirable insofar as it maintains a bond with a previously affectionally positively experienced object (his or her parent).

The study of alcohol expectancies in adolescents and adults lies very much within this theoretical tradition. However, the position that earlier cognitive structures pertaining to alcohol and self/other relationships may occupy as a building block for later cognitive structures pertaining to notions of control, and means-ends relationships has not previously been noted. As a corollary to this point, it should be emphasized that alcohol and other drugs occupy a special place in the life space of drinking and drug using societies. They are physical objects, but they are also heavily implicated in the recreational and relational structure of any drinking society. Because alcohol is typically consumed in social settings, and because it is frequently paired with affects pertaining to affection, sexuality, aggression, and fun, it is both more likely to be schematized early on, and more likely to retain its salience as development progresses.

The data we have reviewed indicate that the early schema that develops pertains to the recognition of a special class of objects, with a particular set of smells, with a particular rule structure that is known to be age and sex graded, and one that is initially perceived as off limits to the child, but is also perceived as having some place in the action framework relating to sense of self and behavior in the future; i.e., children report planning to use these substances as they become older. Within the framework of this conceptualization it is to be expected that the drug schema (or alcohol schema more particularly) will change as the child grows, and as other experience impinge upon the structure. How such changes take place developmentally will depend upon the multiplicity of factors that impinge upon his or her working models of self, others, and interpersonal relationships. The challenge for future research is to articulate the developmental pathways that heighten risk, that dilute it, as well as those that promote resilient outcomes in the face of environments and predispositions that would generally be expected to enhance risk.

One last observation: given that the early emergence of these schemas can be related to patterns of heavier parental alcohol use, it is reasonable to suggest that such exposure is evidence for the early manifestation of risk, pertaining at the least to the precocious knowledge of and interest in this most common drug of abuse. This conclusion may tentatively be extended a bit further, given evidence from other studies linking cognitive expectancies about alcohol to both patterns of use in adolescence and to patterns of parental drinking behavior (Christiansen & Goldman, 1983; Brown et al., 1987; Zucker & Fitzgerald, 1991).

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FOOTNOTES

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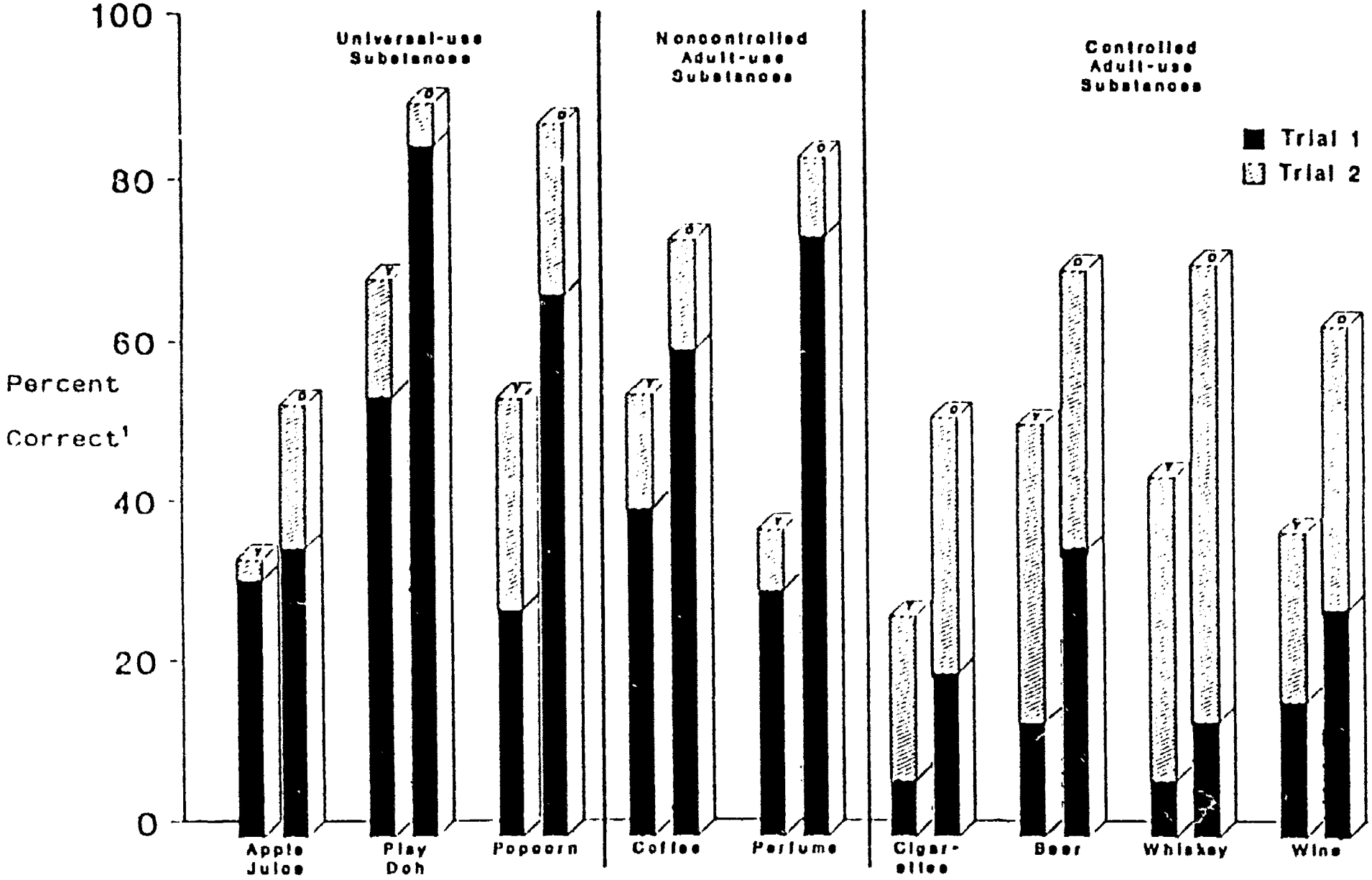
3The parallel terms of structure, strategy, frame, or script all would be appropriate substitutions for the term schema, and they all pertain to a hierarchic model of cognitive processes that encompasses considerably more than expectancies.

Figure 1 (Based upon data from Noll, Zucker & Greenberg, 1990)

Preschool Childrens' Ability to Identify Substances by Odor



Y = Younger children (n = 27) - 31 to 48 months

O = Older children (n = 28) - 49 to 69 months

¹Percentage of children (N = 57) who were able to provide an accurate verbal label (boys and girls combined).

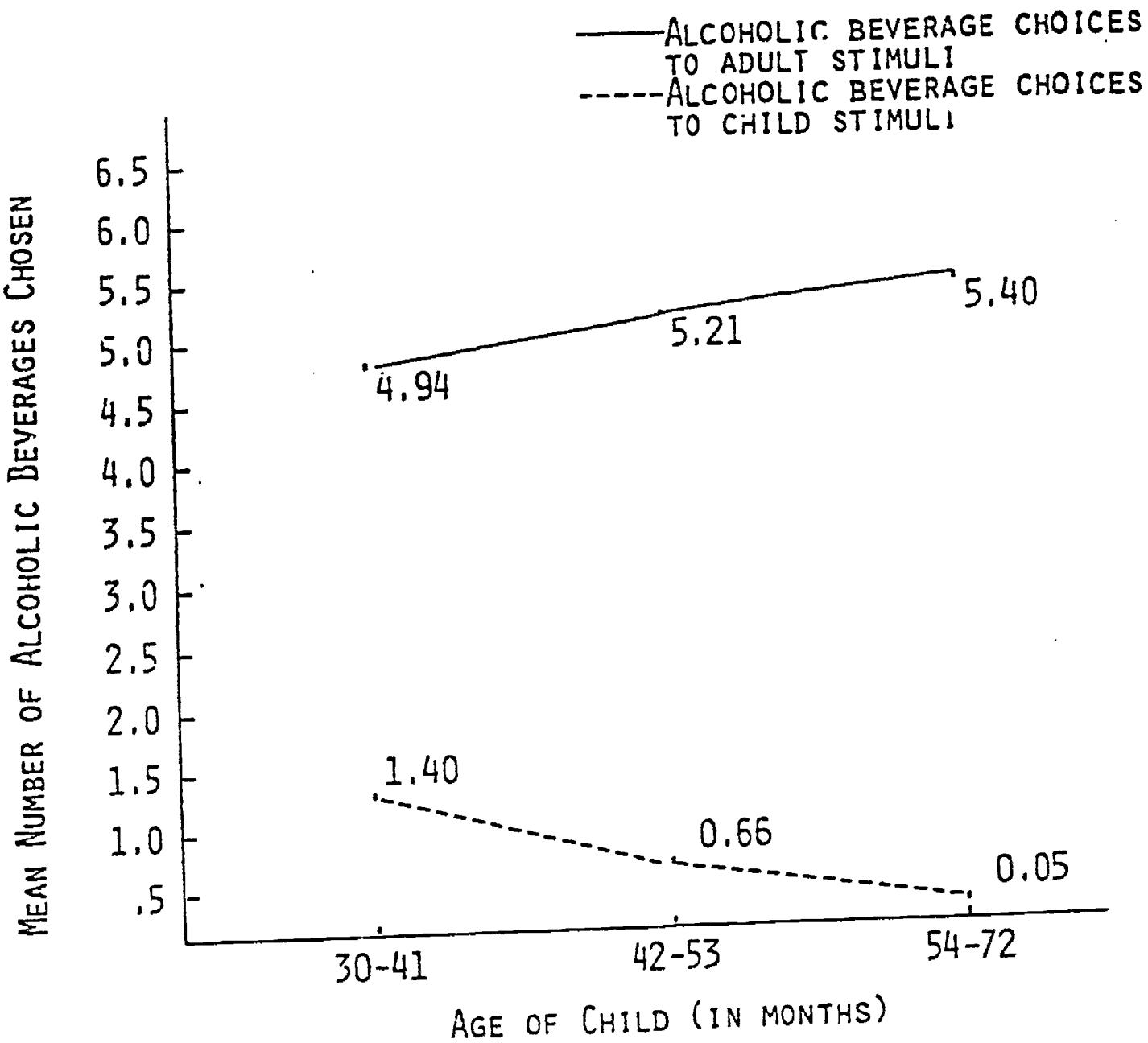


FIGURE 2. MEAN NUMBER OF ALCOHOLIC BEVERAGE DRINKING CHOICES MADE BY PRESCHOOLERS AS RELATED TO CHILD'S AGE AND AGE OF STIMULUS FIGURE (N = 131)

(Reproduced from Zucker, 1987, p. 49)

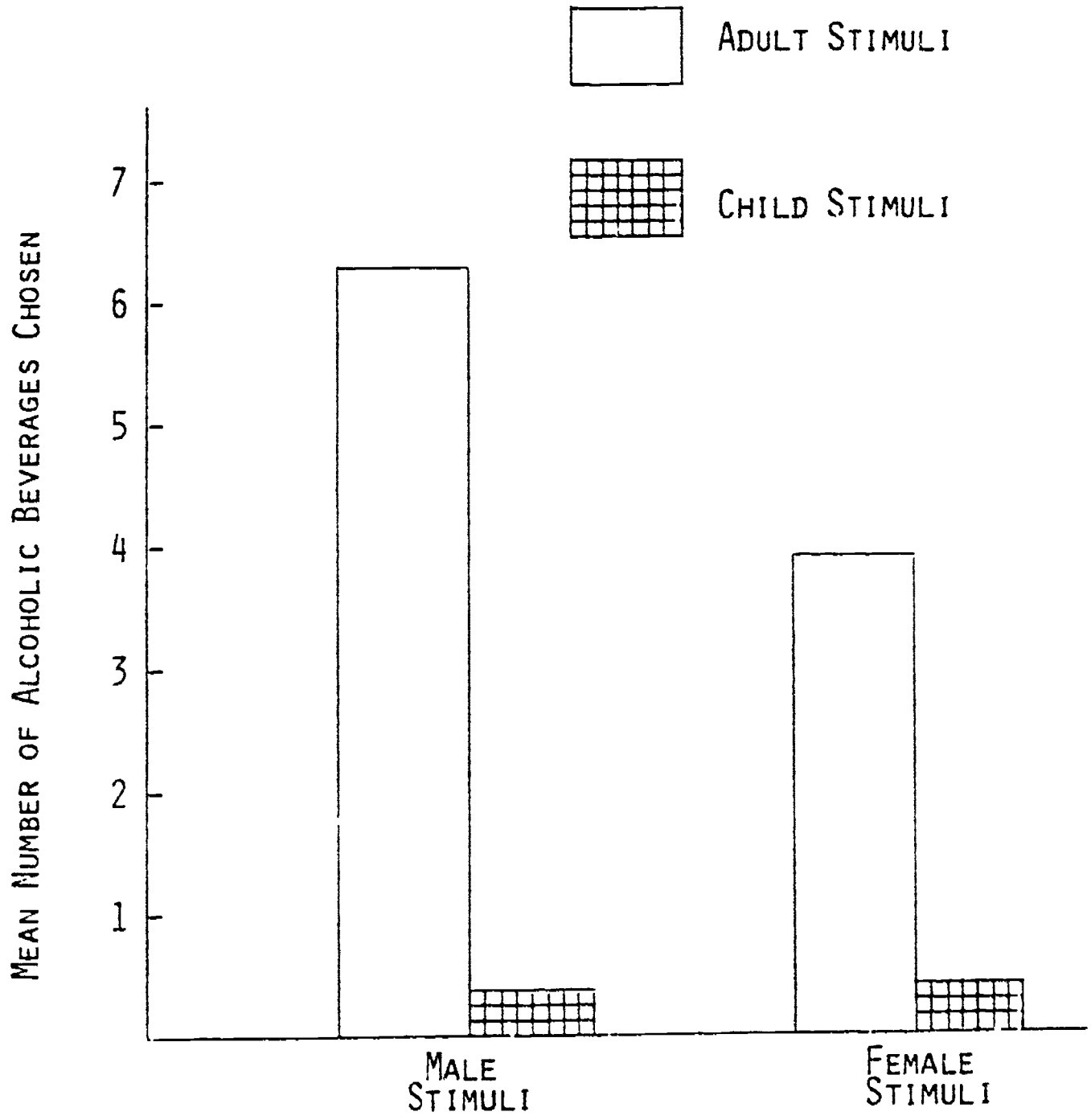


FIGURE 3. MEAN NUMBER[1] OF ALCOHOLIC BEVERAGE DRINKING CHOICES MADE BY PRESCHOOLERS AS RELATED TO SEX AND AGE OF STIMULUS FIGURE (N = 131)

NOTE. [1]REPORTED MEANS ARE WEIGHTED SCORES BASED UPON CHOICES WITH 10 STIMULI.

(Reproduced from Greenberg, Zucker & Noll, 1985)