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ABSTRACT

A study investigated the differential relationship between children's involvement in an experiential health curriculum and past-reported health practices and changes in family health practices. The research is based on the assumption that established patterns of health practices in families are not immutable patterns, but are susceptible to change when subjected to increased transmittal of information from children. A total of 536 sixth-grade students, divided into three different treatment groups, were studied to determine the effects of their kindergarten through sixth grade health curriculum on their family health habits, with particular attention paid to smoking habits. Findings imply that there is a relationship between the health treatment program sixth-grade children have received in their seven years of public schooling and family smoking habits. (Author/JD)

THE RELATIONSHIP BETWEEN SCHOOL HEALTH CURRICULUM AND FAMILY PRACTICES

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ABSTRACT

Family values about appropriate attitudes and behavior begin to be communicated to children the moment they are born. Young children learn what they should do by watching and listening to their parents as adult role models. As the child matures he or she is exposed to a larger environment where significant others (relatives, friends, peer groups, and the media) affect the attitudes, values, and behavior of the child.

The conclusions of numerous research studies have been that the most influential factor in whether a child decides to smoke is whether or not one or more of the child's parents smoke (Flay et al., 1983). In spite of the fact that there has been an overall decrease in adult smoking, current surveys report that approximately 47 per cent of the adult population now smokes and children engage in smoking at younger and younger ages (Green, 1980).

The research described here was undertaken to investigate the differential relationship between children's involvement in an experiential health curricula and parent-reported health practices and changes in family health practices. The model of program effect described in this research is based on the assumption that despite established patterns of health practices in families, these are not immutable patterns, but are susceptible to change when subjected to increased transmittal of information from children.

These findings imply that there is a relationship between the health treatment program sixth-grade children have received in their seven years of public schooling and family smoking habits. Parents of those children who participated in GROWING HEALTHY exhibited proportionately higher changes than parents of children who had less involvement (TEXT/SHCP) or no involvement with an experiential program (TEXT ONLY).

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THE RELATIONSHIP BETWEEN SCHOOL HEALTH CURRICULUM AND FAMILY PRACTICES

Objective

Family values about appropriate attitudes and behavior begin to be communicated to children the moment they are born. Young children learn what they should do by watching and listening to their parents as adult role models. As the child matures he or she is exposed to a larger environment where significant others (relatives, friends, peer groups, and the media) affect the attitudes, values, and behavior of the child.

The conclusions of numerous research studies have been that the most influential factor in whether a child decides to smoke is whether or not one or more of the child's parents smoke (Flay et al., 1983). In spite of the fact that there has been an overall decrease in adult smoking, current surveys report that approximately 47 per cent of the adult population now smokes and children engage in smoking at younger and younger ages (Green, 1980).

The purpose of this research was to assess the relationships between children's involvement in an experiential health program and parent-reported health practices and changes in family health practices in general and in smoking behavior specifically.

Theoretical Framework

The emerging ecological perspective on schools as organizations embraces the concept of a transactional relationship between a school, its students, and its environment. This relationship is one that is established and maintained primarily through the exchange of information. In addition, there is a substantial body of literature which suggests that the family, school, peer groups, etc. socialize a child toward values that guide her or his behavior. If one accepts the ecological view that the transactions that take place between the school and the home will have an impact on the course of both, then we must consider the impact of increasing the transmittal of information concerning good health practices between the school and home via the child.

Over the past several years, a considerable amount of research has been conducted on the effects of parents' and family behavior on children's smoking behavior, particularly during adolescence. However, the research has mainly focused on what effect the family has had on the child, or on what effect the school has had on the child.

Nolte, Smith, and O'Rourke (1983) studied the relative importance of parental attitudes and behavior regarding smoking in the smoking behavior of youth and found that parental attitudes may exert a more significant impact than does parental behavior. Differences in reported smoking behavior between males and females was negligible, but parental opposition to smoking seemed slightly greater for females than for males.

Seventy-five per cent of smoking youths had smoking parents, while only 47 per cent of non-smoking youth had one or more parents who smoked; but a more important finding is that the magnitude of youth smoking significantly increased as the parental behavior remained constant and the parental attitude became more conducive to smoking. Non-smoking youths were twice as likely to have parents who disapproved of their smoking than were smoking youths, even if those parents smoked. Parents who smoked and did not disapprove of their children's smoking were four times more likely to have smoking children than were those who disapproved.

Caramanica, Fieler, and Olsen (1974) contend that as a student's attitudes against cigarette smoking increased, they tended to exert a positive influence on those around them (parents, siblings, and friends) to either reduce or to cease smoking. Olsen, Redican, and Krus (1980) report findings that indicate a reciprocal relationship between number of smoking siblings and best friends and a positive feeling toward smoking.

An evaluation of "My Body" project (a modified version of the School Health Curriculum Project) in Sheffield England revealed an interaction between children's participation in the project and parent behavior. Wilcox et al. (1981) report that in 13 out of the 176 homes where one or both parent smoked, the children had asked their parents to stop smoking. In those instances where there was a decrease in parental smoking, children were cited as an influence in conjunction with other factors such as personal illness, cost of cigarettes, etc.

Andrews and Hearne (1983) report similar findings with parents of third-grade children participating in an experiential health program exhibiting proportionately greater positive changes in smoking habits than parents of third-grade children who served as the control group in a standard textbook curriculum. While some 62 per cent of the experimental group parents either stopped smoking, smoked less, or did not smoke in front of the child, only 47 per cent of the control parents had changed smoking habits. Further, the experimental parents overwhelmingly (77%) attributed their change directly or in part to information their child brought home from school.

Nader et al. (1982, p. 376) maintain that "In considering the adolescent as a family change agent or gatekeeper for health information, the reciprocal influence of the child on parents' behavior and attitudes is crucial." Baronowski (1978) examined the role of adolescents on adult decision making and found they had a reasonable influence on parents' routine use of leisure time, choice of television shows, and meal planning. Since these decisions are similar to those involved in health promotion, it suggests that programs that enhance children's attitudes regarding healthful behavior might be advisable.

The mechanisms for influencing behavior that already exists offer special aids to strengthen a community health program. Nader et al. (1982) suggests that the most efficacious time to initiate school-based family approaches to health behavior is at an early grade level when family ties are not strained by the independence-establishing tasks of adolescence.

The research described here was undertaken to investigate the differential relationship between children's involvement in an experiential health curricula and parent-reported health practices and changes in family health practices. The model of program effect described in this research is based on the assumption that despite established patterns of health practices in families, these are not immutable patterns, but are susceptible to change when subjected to increased transmittal of information from children.

Method

Participating in the study were 536 children who entered kindergarten in 1977 and completed sixth grade in 1984 in 12 elementary schools in three suburban school districts; 182 children in one district served as treatment group I; 152 children in a similar district served as treatment group II; and 192 children in a similar district as treatment group III. The districts were similar in student SES, ethnic composition, achievement stanine distribution, and average level of achievement. Students in treatment group I were treated by classroom groups and rotated through four learning stations in groups of five and six children from kindergarten through sixth grade. The approach used, the Primary Grades Health Curriculum Project (PGHCP), and the School Health Curriculum Project (SHCP), consisted of specific health content which represented the body as a network of systems which require cultivation and care. This curriculum sequence has recently been retitled "Growing Healthy," and will be referred to hereafter in this paper by the new name. The learning/teaching method emphasized small-group learning, peer teaching, experiential activities, and teachers specially trained in health education and experiential learning. Each child received an average of ten 40-minute health experiences at

each grade level from kindergarten through sixth grade. The second treatment group (TEXT/SHCP) received a standard elementary school curriculum, with the same health concepts presented tangentially as a component of science until intermediate grades, the preadolescent smoking onset years. Then they received the same curriculum--the School Health Curriculum Project (SHCP)--as the K-6 treatment group for fourth, fifth, and sixth grades. The third treatment group (TEXT ONLY) received the standard elementary school curriculum with the same health concepts presented tangentially as a component of science from kindergarten through sixth grade.

The hypotheses tested were that there would be no differences between the three groups in parent-reported health perceptions and behavior. Cognitive and affective pretests were administered to kindergarten children from these families in October 1977 to establish non-significance of beginning difference ($p < .001$). Changes in family health practices were assessed using a self-report questionnaire sent home to parents. The reliability of the Parent Family Health Practices survey was estimated by the correlation between a random sample of parent responses and student responses to identical items. The analyses are based upon surveys returned by 73.7 per cent of the GROWING HEALTHY and TEXT/SHCP parents and 65.2 per cent of the TEXT ONLY parents. The raw data from the questionnaires were transformed into frequencies and proportions using the BREAKDOWN and CROSSTABS options of the SPSS computer statistical package. These data were then analyzed using Chi-square tests and Z-ratios.

Frequency data for favorable responses and percent of the sample responding favorably to the questions on the instrument are presented in Table 1.

Table 1
Frequencies, Proportions of "Yes" Responses and/or
Favorable Responses to Questions on the Parent Survey Instrument

Variable	GROWING HEALTHY	TEXT/SHCP	TEXT ONLY
1. Change in attitude about health	106(64.2)	50(64.1)	41(44.6)
2. Change in child's health habits	93(58.5)	44(56.4)	47(52.2)
3. Child's general attitude	131(78.4)	74(89.2)	72(78.2)
4. Role of health program in forming child's attitude about school	129(77.2)	61(74.4)	59(64.2)
5. Smoking behavior of family	80(47.9)	36(43.4)	53(57.6)
6. Family member quit smoking	55(34.4)	23(28.8)	25(28.4)
Family member quit smoking adjusted for start smoking	31(16.5)	20(11.1)	22(13.3)
7. Change in smoking behavior of family members who smoke	55(63.2)	23(63.8)	25(47.2)
Change in father's smoking behavior	21(54.3)	12(45.5)	24(27.3
Change in mother's smoking behavior	15(64.3)	9(59.1)	13(48.0)
8. Household members smoking habits			
Nonsmoker constant	34(37.06)	29(35.09)	24(26.08)
Smoker constant	29(31.61)	18(21.78)	29(31.61)
Smoker stopped	7(7.36)	3(3.63)	5(5.45)
Smoker changed	4(4.36)	2(2.42)	0(0.00)
Smoker stopped/changed	10(10.90)	5(7.26)	11(11.90)
9. Health program role in change in smoking behavior	70(70.0)	26(61.9)	17(32.1)
a. Direct result	11(11.0)	4(9.5)	3(5.7)
b. Major part in change	19(19.0)	6(14.3)	2(3.8)
c. Some contribution to the change	40(40.0)	16(38.0)	12(22.6)
d. Not a factor in the change	30(30.0)	16(38.1)	36(67.9)

The frequency data in Table 1 display, in general, larger proportions of parents in the GROWING HEALTHY and TEXT/SHCP group responding favorably or answering "yes" to the questions than the parents of the TEXT ONLY group children. Two categories should be noted: those indicating that the health program at school was not a factor in decisions about smoking behavior (Growing Healthy, 30.0; TEXT/SHCP, 38.1; TEXT ONLY, 67.9) and the recommendation to increase emphasis on health above the current level of program delivery (Growing Healthy, 19.8; TEXT/SHCP, 21.8; and TEXT ONLY, 31.0). In these two categories a lower proportion was a more favorable response. Thus, the group with the textbook-only approach indicated their smoking behavior was less influenced by their children's health program and that they desired a greater emphasis on health than the current curriculum provided.

The statistical tests and associated probabilities of statistically significant differences for each of these variables are presented in Table 2.

Table 2
Statistical Tests and Associated Probabilities of Statistical Significance for Parent Survey Data Variables

Variable	Statistical Test	Value	P
1. Change in attitude about health	Chi-square	12.63	.013
2. Change in child's health habits since starting school	Chi-square	0.91	NS
3. Child's general attitude toward school	Chi-square	18.38	.048
4. Role of health program in forming child's attitude about school	Chi-square	12.82	.013
5. Smoking behavior of family	Chi-square	3.84	NS
6. Family member quit smoking	Chi-square	1.28	NS
Subtest: Adjusted for those who starting smoking by group	Chi-square	3.27	NS
7. Change in smoking behavior of those who still smoke	Chi-square	6.37	.047
Subtest for source: Fathers	Z-statistic	3.86	.001
Subtest for source: Mothers	Z-statistic	3.93	.001
8. Household members smoking habits	Chi-square	6.90	NS
9. Health program role in change in smoker behavior	Chi-square	22.08	.001
a. Subtest: Direct result	Z-statistic	5.32	.001
b. Subtest: Major part in decision	Z-statistic	6.45	.001
c. Subtest: Some contribution	Z-statistic	4.20	.001
d. Subtest: Not a factor	Z-statistic	-8.68	.001

Table 2 presents the results of statistics used to test 9 hypotheses about the nature of the variables included on the parent questionnaire. Of the 9 hypotheses, 4 hypotheses of significant variations from chance were accepted; the alternative hypothesis of a non-significant variations from chance were accepted for the remaining 5 hypotheses. In all cases the direction of the disproportions was positively related to the involvement in the GROWING HEALTHY group. The results of these tests are reported in the sections that follow:

Child's Attitude and Habit Change. These results indicated that parents of GROWING HEALTHY children and TEXT/SHCP children reported more frequently than did TEXT ONLY parents that they had observed both a general attitude change ($X^2 = 18.38$; $p < .048$) and a change in attitude in relation to health ($X^2 = 12.63$; $p < .013$) in their children since they had entered school and that the health program had some impact in the formation of the children's attitudes toward school ($X^2 = 12.82$; $p < .013$). No difference was found between TEXT/SHCP and GROWING HEALTHY parents.

Family Smoking Behavior. The test of the hypotheses in relation to Question 6--Family Members Who Quit Smoking--resulted in the finding that the percentage of individuals who reported that they had quit smoking did not vary significantly among the three groups from what we would expect to find from chance alone ($X^2 = 1.28$; NS). In addition, when the number of those who had quit was adjusted for those who had started smoking since their child entered school, the resulting frequencies were no greater than one would expect from chance alone ($X^2 = 3.27$; NS). Although the proportion of quit minus those who started smoking within groups represented a larger proportion in the GROWING HEALTHY group than the other two groups, it was no greater than would be expected from chance occurrence. In addition to those who had stopped smoking (GROWING HEALTHY, 34.8%; TEXT/SHCP, 28.8%; and TEXT ONLY, 28.4%), 63.2 per cent of the Growing Healthy group, 63.8 per cent of the TEXT/SHCP group, and 47.2 per cent TEXT ONLY group who still were smoking indicated that they had changed their smoking habits. These proportions are significantly different from what would be expected from chance ($X^2 = 6.37$, $p < .047$). The main source of the deviation attributable to the change in smoking habits was from the changes in fathers' smoking habits (Growing Healthy, 54.3%; TEXT/SHCP, 45.5%, and TEXT ONLY, 27.3%, $Z = 3.86$, $p < .001$). The numbers of parents who had changed smoking behavior were statistically different from what would be expected from chance variations; the deviations were positive related to the GROWING HEALTHY group. This finding suggests that there is a relationship between the health treatment program sixth-grade children have received in their seven years of public schooling and family smoking habits. Parents of those children who participated in both the Primary Grades Health Curriculum Project (PGHCP) and the School Health Curriculum Project (SHCP), now called GROWING HEALTHY, exhibited proportionally higher changes than parents of children who were exposed to the School Health Curriculum Project alone or the textbook curriculum.

In an effort to assess parents' perceptions of the roles the children's school health program had on these changes, parents were asked to indicate the impact their children's health program at school had on their decisions. Response categories ranged from "direct result" to "not a factor." Responses were considered "yes" if the parent chose a "direct result," a "major part in the change," or "some contribution." The proportion of GROWING HEALTHY group parents responding "yes" was 70.0 per cent, TEXT/SHCP group parents 61.9 per cent, and TEXT ONLY group parents 32.1 per cent. Parents' responses to this question resulted in the greatest deviation from the expected distribution of any variable in the study (X^2 = 22.08, 3 df, $p < .0012$). Sub-tests using the Z-ratio to isolate individual categories revealed statistically significant differences for all categories, all in favor of the GROWING HEALTHY group. For example, 30.0 per cent of the GROWING HEALTHY group parents who had changed smoking behavior indicated that the change in smoking behavior was a direct result or a major part in change of their children's health program at school; correspondingly, only 9.5 per cent of the TEXT ONLY group parents indicated a direct result or a major part. On the other hand, while only 30.0 per cent of the GROWING HEALTHY group parents chose not a factor, some 67.9 per cent of the TEXT group parents indicated their children's health program was not a factor in their families' smoking behavior decisions.

This finding supported the hypothesis that there is a relationship between the health program children received from kindergarten to the school and the smoking habit decisions of the child's family. Further, a significantly greater proportion than one would expect from chance variation attributed the change to the fact that their children had participated in either the PGHCP and the SHCP or just the SHCP. These findings at sixth grade are consistent with the study findings at third and fifth grades.

Results/Conclusions

In summary, significant variations were found between the three groups in the number of family members who had changed their smoking behavior (reduced smoking, trying to quit, not smoking in front of child) (X^2 = 637, $p < .05$) with parents who still smoke reporting significant behavior change. In addition, differences greater than those expected from chance were found in parents' perceptions concerning why they changed their behavior (X^2 = 22.08, $p < .001$). All changes were in favor of the GROWING HEALTHY group.

A significant percentage of parents ascribe their behavior change to the health program. Some 70 per cent of the GROWING HEALTHY group parents who reported changes in health behavior attributed the changes to health information that their children brought home from school. Only 32.1 per cent of the TEXT ONLY group parents attributed their behavior change to the same source.

Implications

These findings imply that there is a relationship between the health treatment program sixth-grade children have received in their seven years of public schooling and family smoking habits. Parents of those children who participated in GROWING HEALTHY exhibited proportionately higher changes than parents of children who had less involvement (TEXT/SHCP) or no involvement with an experiential program (TEXT ONLY).

Exposure to the PGHCP in conjunction with the SHCP reduces the risk of onset of substance abuse by these children when compared to children who have received only the SHCP or a standard health curricula: the interaction between early intervention and intervention during the onset years seems to have a more positive impact on children's health profiles than does intervention during onset alone. The interaction and influence of parental attitudes on the social environment of the child can not be discounted and the potential effect parents can have in mediating and structuring peer group impact must be considered.

The findings of this research suggests that while school and home interaction may bring about changes in the child, the school and child interaction can be a significant factor in changes in family health practices, particularly in the areas of reduction and/or cessation of parental smoking. These findings carry particular importance when one considers the findings of a number of research studies that parental smoking behavior is the greatest influence in the onset of smoking in adolescence (Green, 1980). The strong influence of family health practices in determining children's orientations to health behavior notwithstanding, children's involvement in an experiential curriculum can significantly be related to changes in family health practices. The potential effects of schooling on secondary beneficiaries (the family) rather than on the primary target (the child) are indicated by this research.

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