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Bestellnummer: SUBITO:VE21011900429 E000026046
Name des Bestellers: Hertie School gemeinnuetzige GmbH
Benutzerkennung: SON08X00114

Lieferdatum: 2021-01-20 08:01:41
Lieferpriorität: NORMAL
Aktueller Lieferweg: Email
E-Mail Adresse: library@hertie-school.org

Bemerkungen zur Auslieferung:

Angaben zum Dokument:

Signatur: H00 H00/Z.B 1903
Autor:
Titel: Social work in education
Jahr: 1990
Band / Jahrgang: 13/1
Seiten: 34-
Aufsatzautor: Frank, Jean R.
Aufsatztitel: High School Dropout: A New Look at Family Variables.
ISSN:
ISBN: 0162-7961
CODEN:

Ihre Bemerkung zur Bestellung:

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High School Dropout: A New Look at Family Variables

JEAN R. FRANK

A secondary analysis of statewide survey data provides new evidence on the importance of family variables in school dropout. Findings indicate that the frequently found correlation between socioeconomic status and dropout may be primarily due to parent education, not family income, and that the number of family stressors is significantly related to dropout. Implications for dropout prevention and social work intervention are discussed.

■ The professional services of social workers have long been considered relevant to, if not required for, the educational success of many children. Social services have been included in special education, in truancy work, and in some elementary schools for years in many parts of the country. The home-school-community liaison role has been part of school social work since its beginnings in the early 1900s.

Since the publication of *A Nation at Risk: The Imperative for Educational Reform* (National Commission on Excellence in Education, 1983), the educational community has been organizing new efforts to tackle school dropout. Surprisingly, school social workers seldom have been included in the development or implementation of dropout prevention efforts. The thrust of recent educational policy and programs related to dropout emphasizes academic achievement and school factors. In part, this is the result of previous educational research on dropout that emphasized academic and school factors while giving scant attention to the influences of family. Documentation of the relationship between family factors and dropout would carry significant implications for the nature of dropout prevention

and for the use of school social workers in these efforts. This article investigates that relationship.

Literature Review

A review of the literature shows that for more than 30 years, socioeconomic status has been the most frequently used family variable in dropout research. In 1958, Tesseneer and Tesseneer reviewed 20 dropout studies; in 1984, Steinberg, Blinde, and Chan reviewed 12 additional studies. Both research teams concluded that the socioeconomic position of the family in the community is the characteristic that most clearly and consistently distinguishes dropouts from high school graduates. Accordingly, it would be tempting to conclude that poverty is an important family variable in dropout, but the composite measures of socioeconomic status used in most previous dropout research do not provide adequate evidence for that assumption. Dropout research has typically used combinations of measures such as parent education, occupational status of the head of the household, parental earnings, and presence of certain kinds of possessions in the home to represent socioeconomic status (Bachman, Green, & Wirtanen, 1971; Combs & Cooley, 1968; Peng, 1983). As a result, it is not possible to draw conclusions about the relative importance of these factors or to know why socioeconomic status has repeatedly been shown to be inversely correlated with dropout.

A more detailed investigation of family variables in research on the family could be expected, particularly research on the effects of family problems and stressors. Indeed, considerable research can be found on the development of family stress in relation to "traumatic events" (McCubbin & Figley, 1983), "chronic strains" (Billings & Moos, 1984), and "daily hassles" (Delongis, Coyne, Dakof, Folkman, & Lazarus, 1982). McCubbin and Patterson (1982) identified a phenomenon particularly relevant to this article called "pileup," which recognizes that families responding to a stressor often encounter additional stressors during their coping efforts. However, none of the more detailed studies of family problems and stressors related these variables to educational outcomes for the children.

Building on previous research in dropout and family stress, this article investigates the relationships between dropout and family income and between dropout and parent education (family income and parent education being factors often part of composite measures of socioeconomic status) and the relationship between family stressors and dropout.

Methodology

This article presents a secondary analysis of data collected in the 1981 biennial survey conducted by the Texas Department of Human Resources. The unit of analysis is households. The survey included face-to-face interviews in 3,043 households, 61 percent of the original sample selected as representative of the general population of households in the state. Automated random selection procedures were employed to select sample households within each of 112 counties, using a predetermined sample size for each county. College students who were qualified and teachers and other seasonal professionals were used as interviewers. Bilingual interviewers were used where needed. The survey questionnaire was pretested in eight locations. A three-level quality control process was implemented to ensure common procedures for conducting the interviews, to identify and correct contradicting responses, and to ensure completeness of the questionnaires.

Definition of Variables

For the secondary analysis, two groups of households were pulled from the original sample for comparative analysis: (1) "Modal/High School (HS) Only" (MOD/HSO) households, defined as households in which youths ages 14 through 20 are in the modal grade for their age or have graduated from high school or earned a general equivalency diploma (GED) but have not received education beyond high school, and (2) "Dropout/High-Risk" (DO/HRSK) households, defined as households with youths ages 14 through 20 who have dropped out of school or who are at high risk for dropout by virtue of being two or more grades below the modal grade for their age. There were 346 households in the first group and 50 in the second. These two groups of households define the two categories of the dependent variable, "dropout," in this article.

Four independent variables were used: (1) household income, (2) number of household stressors, (3) parental education, and (4) race/ethnicity. Household income is defined as the total household income before taxes, plus the value of food stamps if received, minus any earnings contributed by youths identified as dropout/high-risk, divided by the 1981 federal poverty level for a nonfarm family of the same size. The resulting income value is the percent of the federal poverty level represented by the household income. Households were then put in one of three income categories: (1) 0 to 100 percent of poverty level, (2) 101 to 250 percent

of poverty level, and (3) above 250 percent of poverty level. Two hundred fifty percent of the poverty level was the equivalent of 115 percent of the state's median income.

The second independent variable, the number of household stressors, is a two-category variable computed by a simple tally of the number of measured stressors present in each household with "low" defined as none, one, or two stressors present in the household and "high" defined as three or more stressors. The presence or absence of stressors was determined by the report of the household member interviewed in the survey. The 19 family stressors available from the data are listed as follows:

1. Single parent (separated, divorced, widowed, never married)
2. Three generations of family members in the household
3. Six or more persons in the household
4. Person(s) with serious health problems
5. Member(s) hospitalized six or more days in previous year
6. Person(s) whose health problems limit functioning
7. Person(s) with serious emotional or behavioral problems
8. Person(s) reported as mentally retarded
9. Presence of a teen who is pregnant or is a parent
10. Two or more family moves in the last two years
11. Person(s) with problem involving police or an accusation of a crime
12. Person(s) abusing drugs or alcohol
13. Serious family arguments
14. Adult or child abuse or exploitation
15. Person(s) not covered by health insurance
16. Day care arrangements necessary for member(s)
17. Problem with establishing or collecting child support
18. Law-related child problems (paternity, visiting, custody)
19. Member(s) supporting someone who lives elsewhere

The third independent variable, parent education, was also defined as a two-category variable: (1) "Only Dropouts"—households in which both parents in two-parent families or the resident parent in single-parent families is a high school dropout—and (2) "Parent(s) HS Grad."—households in which one or both parents in two-parent families or the resident parent in single-parent families graduated from high school or has a GED.

The fourth independent variable, race/ethnicity, was divided into three categories: (1) "White/Anglo (not Hispanic)," (2) "Black (not Hispanic)," and (3) "Mexican American/Hispanic."

Hypotheses and Their Rationales

Hypothesis 1. *Household income is inversely related to the probability that a household contains a youth who is a dropout or at high risk for dropout.* As indicated in the literature review, dropout studies have consistently found an inverse relationship between socioeconomic status and dropout rate. Few, however, have used direct income measures with controls for family size or separated the effect of income from parent education and occupation. Separating the effects of income and parent education and using a direct measure of income with controls for family size provide a more accurate assessment of the relationship between income adequacy and dropout than the measures of socioeconomic status used in previous studies.

Hypothesis 2. *The value of income for predicting dropout will be greater than the value of parent education level for predicting dropout.* One study that separated the effects of income and parent education level found that, "Unlike the family income effect, parental schooling effects are not particularly large for the transition from high school attendance to high school graduation" (Mare, 1980, p. 302). Hypothesis 2 is based on Mare's study.

Hypothesis 3. *There is a positive relationship between the number of stressors present in a household and the probability that a household contains a youth who is a dropout or at high risk for dropout.* Ecological theory, particularly as presented by Bronfenbrenner (1979) and Garbarino and Asp (1981), posits an inverse relationship between the number of stressors a family must cope with and the success of the family's children in school, with family support for educational achievement as the intervening variable. Also, family stress theory and research, although not specifically focused on the effect of family stress on educational support functions, have consistently found positive relationships between the extent of family stress and physical illness, psychological disorder, and family dysfunction.

Hypothesis 4. *With the effects of income, number of household stressors, and parental education level removed, there is no association between dropout and race/ethnicity.* Rumberger (1983) found that "minorities with the same background characteristics as whites are just as likely if not less likely to drop out of high school as whites" (p. 206).

Also, Bianchi (1984) found that socioeconomic and family compositional differences between whites, blacks, and Hispanics to a large extent explain the higher rates of grade retention among minority children. Although a higher proportion of minority group members are expected to have lower income, higher family stress, and lower parental education, when these factors are held constant, little difference in probability of dropout is expected.

Data Analysis

A 72-cell contingency table was created with dropout as the response variable and income, number of household stressors, parent education, and race/ethnicity as the explanatory variables.

Log-linear analysis was used because it is preferred for categorical data, particularly when both the outcome and predictor variables are categorical (Kennedy, 1983). It is preferred because it is not based on the assumptions of equal variance or multivariable normality within the subgroups of the dependent variable, as is multivariate analysis of variance. The Statistical Package for the Social Sciences-X (SPSS-X) was used to perform the analyses.

Results

Three sets of logit analyses were conducted. The results of the first two sets, hierarchical components and full-partial components, are presented in Table 1.

Hypothesis 1

The hierarchical component L^2 shows that without adjustment for the effects of the other explanatory variables, each of the explanatory variables is significantly related to dropout. Thus, hypothesis 1 is affirmed.

Hypothesis 2

However, the full-partial components analyses show that the relationship between income and dropout does not hold up after adjustments are made for the effects of the other explanatory variables. The full-partial component for income represents the independent effect of income. This

Table 1. Summary of Logit Analyses of Explanatory Variables

Logit Analysis	Source	<i>L</i> ²	<i>df</i>	<i>p</i>
Hierarchical components ^a	Null-Logit	93.39	34	< .001
	Income	20.86	2	< .001
	Race	23.22	2	< .001
	Number of stressors	22.86	1	< .001
	Parent education	45.09	1	< .001
Full-partial components	Income: race and number of stressors and parent education ^b	2.79	2	NS
	Race: income and number of stressors and parent education	2.14	2	NS
	Number of stressors: in- come and race and parent education	8.78	1	< .01
	Parent education: income and race and number of stressors	19.11	1	< .001

NOTE: NS = not significant.

^aEach explanatory variable was entered individually in model 1 after the null model in four separate logit analyses.

^bRead: Variation from the null-logit model due to effects of income after making adjustments for race, number of stressors, and parent education.

is analogous to an analysis of covariance, with race, number of household stressors, and parent education as covariants. The full-partial components reveal that only the main effects for parent education and number of household stressors are significant after adjustments for the effects of each of the other variables. Accordingly, hypothesis 2 is not supported. That is, the value of income for predicting dropout is not greater than the value of parent education level for predicting dropout. In fact, the relationship between household income and dropout is not significant after adjusting for the effects of the other explanatory variables. Contrary to hypothesis 2, the results indicate that parent education is the more powerful predictor of dropout. Further, because income fails to pass the test of correlation, the results of this study do not support any causal relationship between income and dropout (Campbell & Stanley, 1963). In short, income is a predictor of dropout because of its correlations with parent education and number of household stressors and not because of its effect independent of these variables.

Hypothesis 3

The full-partial component for number of household stressors affirms hypothesis 3. The number of stressors in a household is positively related to the probability that the household contains a youth who is a dropout or at high risk for dropout. As defined in this study, number of household stressors was a dichotomous variable with low defined as none, one, or two stressors present in the household and high defined as three or more stressors present in the household. Households in this study had from 0 to 13 stressors (19 stressors were measured).

Table 2 shows the cross-tabulation of the two categories of the dependent variable—DO/HRSK households and MOD/HSO households—and the number of stressors per household. Essentially, the row percentage for DO/HRSK households is the household dropout rate for households having each respective number of stressors. Accordingly, four stressors could reasonably be established as a threshold number of stressors beyond which dropout was much more likely. Chi-square and Cramer's V analyses were computed for the data in Table 2 to test the significance and strength of the relationship between dropout and this more detailed breakdown of number of household stressors. Chi-square was 66.32 ($df = 6, p < .001$), and Cramer's V was .409.

Hypothesis 4

Referring again to Table 1, the full-partial component for race is not significant after making adjustments for the effects of the other explanatory variables, affirming hypothesis 4. Congruent with the findings of previous studies, there is no association between dropout and race/ethnicity after removing the effects of other explanatory variables.

Best Two-Variable Model

The third set of logit analyses was conducted to produce a best-fitting, most parsimonious, logit model. A model containing only the variables for parent education and number of household stressors produced expected odds of a household being in the DO/HRSK group that did not deviate significantly from the actual odds observed in the data. It is clear that the model based only on the main effects of parent education and number of household stressors is the best-fitting two-variable model. From the results of the third set of logit analyses, it is possible

Table 2. Frequencies and Percentages of Households by Number of Stressors and Dropout Group per Household

Number of Stressors per Household	Dropout Group						Total		
	Dropout/High-Risk Households			Modal/HS Only Households			Frequency	Row Percent	Column Percent
	Row Frequency	Column Percent	Row Percent	Column Percent	Row Percent	Column Percent			
0	6	5.00	12.00	114	95.00	32.95	120	100.00	30.30
1	7	6.73	14.00	97	93.27	28.03	104	100.00	26.26
2	11	13.75	22.00	69	86.25	19.94	80	100.00	20.20
3	6	14.63	12.00	35	85.37	10.12	41	100.00	10.35
4	8	30.77	16.00	18	69.23	5.20	26	100.00	6.57
5	3	21.43	6.00	11	78.57	3.18	14	100.00	3.54
6 or more	9	81.82	18.00	2	18.18	.58	11	100.00	2.78
Total	50	12.63	100.00	346	87.37	100.00	396	100.00	

to calculate the expected odds of a household being in the DO/HRSK group using only the variables parent education and number of household stressors. When other variables are equal, the expected odds of households in the high category of number of household stressors being in the DO/HRSK group compared to households in the low category of number of household stressors are 1.84 to 1. When other variables are equal, the expected odds of households in the "Only Dropouts" category of parent education being in the DO/HRSK group compared to households in the "Parent(s) HS Grad." category of parent education are 2.56 to 1.

Table 3 presents the conversion of these odds into more easily understood percentages, given each possible combination of parent education and number of household stressors. Only 4 percent of households with two or less stressors and one or both resident parents who are high school graduates are expected to have a youth who is a dropout or at high risk for dropout. In contrast, 49 percent of households with three or more stressors and a resident single parent or both resident parents who are dropouts are expected to be in the DO/HRSK group.

Discussion

Limitations Regarding Generalizability

It should be noted that the data used for this article were originally collected in 1981 and were taken from a sample intended to be representative of Texas households. Certainly, geography and the age of the data must be considered when generalizing the results of this research. Concerns about the data's age were balanced against the benefits of the variety of family stressors available in this data set and the representative statewide sample. Age of the data was deemed not to be a prohibitive limitation, because this research investigates the nature of the relationships

Table 3. Percentage of Households Expected to Be in the DO/HRSK Group, Given the Main Effects of Parent Education and of Number of Stressors

Parent Education	Number of Stressors	
	Low (0–2 stressors)	High (3 or more stressors)
Only dropouts	22 %	49 %
Parent(s) HS graduate	4 %	12 %

between family variables and dropout, rather than establishing the rate of occurrence of these relationships in the population. Changes in the rate of dropout do not necessarily imply changes in the relationship of dropout and its correlates.

Further, the results of this study may not be generalizable where greater availability or effectiveness of programs and services to help families cope with cumulative stressors might reduce the negative effects of stressors on dropout.

Implications for Research

Clearly, the lack of a significant relationship between income and dropout is contrary to the hypothesized expectation. In fact, this article's findings indicate that parent education, specifically whether or not parents have graduated from high school, is likely to be the most important factor in the inverse relationship between socioeconomic status and dropout found in so many previous studies. Many social workers may be surprised by this finding, and further research is merited.

One of the most important results of this research is the finding that the cumulative number of stressors present in a household is related to dropout. Although several earlier studies linked dropout to some of the individual stressors measured in this research—for example, teen pregnancy and parenthood, growing up in a single-parent home, making frequent moves—no other study found in the literature review tested the relationship between the cumulative number of stressors and dropout. However, further research is needed to explore the dynamics in the relationship between the pileup of family stressors and dropout.

In this article's research into predicting dropout, parent education level was the most powerful variable of those tested. The results of this research reveal only the strength and direction of the relationship between parent education and dropout. As with the relationship between number of household stressors and dropout, the relationship between parent education and dropout deserves further research.

Overall, this article's findings indicate that the family system cannot be omitted from any valid conceptualization of dropout. The findings do not negate the influence of school factors, but by affirming the importance of family variables, they imply that future efforts in dropout research would be more effective if consideration of family factors is incorporated.

With regard to dropout research, this article's findings indicate a need for cross-disciplinary efforts. Little of the previous dropout research

has been conducted by social workers, whose professional views of the world emphasize the circumstances and needs of families. If the premise is accepted that both the family system and the school system are important determinants of educational outcomes, perhaps more dropout research is needed that involves cross-disciplinary collaboration between educators and social workers.

Implications for Policy and Programs

With regard to policy, the broadest implications of this article's findings are that the national goal of improving the educational quality of the labor supply via dropout reduction would be better served by policies that consider families' needs and problems. More specifically, if dropout reduction is the goal, any policy that influences the well-being of families also influences the achievement of educational goals. For example, proposed programs for publicly funded national health care and day care may contribute to reduction of family stressors and thereby reduce the dropout rate.

One of this article's findings is that race/ethnicity is not related to dropout once the effects of parent education and number of household stressors have been removed. This does not deny the fact that there are proportionally more minority households with parents who are dropouts and with a high number of household stressors. Consequently, dropout does have special implications for minorities and for policy.

At the policy level of local school systems, a support service could be established within the mainstream of the school system to address the needs of students' families and to link families to resources and services within the community. Clearly, school social workers are particularly well suited for this role. School administrators and service agency administrators would need to coordinate policies and programs that identify families of students affected by multiple stressors and that connect these families to the agency services they need.

The importance of parent graduation from high school also carries educational policy implications. The finding that children of high-school dropouts are more likely to become high school dropouts implies that greater consideration should be given to the broader consequences of adult education. Programs to support employee release time so adult dropouts can obtain high school diplomas could be tried on an experimental basis. If the rate of high school graduation among children of program participants is higher than that among children of comparable nonparticipants, such programs may be cost effective.

This article's primary implication for the development of local dropout prevention programs is that planners of such programs should view not only the high-risk student as the client, but the student's family as well. School social workers' assessment process should include evaluation of the family's support for the student's educational achievement and identification of barriers to that support. If parents have not graduated from high school, what are their attitudes and feelings about the need for their child to graduate? Is it necessary to get parents to graduate from high school for them to value high school graduation for their children? If it is not possible to strengthen the family's support for the child's educational achievement, what other means are available to compensate for this deficiency?

School dropout is a complicated problem. Many variables are involved—variables in the family system, the school system, and the broader social environment. As yet, empirical identification of relevant variables and the relationships among them is not complete. However, school social workers, dropout researchers, and planners of dropout prevention programs can use the empirical findings that are available, including the results of this article's research, to begin to address the problem of school dropout.

ABOUT THE AUTHOR

Jean R. Frank, PhD, ACSW, is Social Work Program Director, St. Edward's University, 3001 S. Congress Avenue, Austin, TX 78704. This article is a revised version of a paper presented at the Texas National Association of Social Workers Convention, November 1989, Corpus Christi.

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Accepted March 15, 1990