

Family functioning profiles, early onset of offending, and disadvantaged neighborhoods

Summary

Few studies have examined which profiles of multiple aspects of family functioning are related to boys' offending. This paper identifies four different profiles of family functioning based on measures of supervision, communication, physical punishment, family instability, and parental deviance. The relationship of these profiles to neighborhood quality and to onset of offending was examined. The most well adjusted profile was under-represented in disadvantaged neighborhoods, whereas the profile with the most physical punishment and poor supervision was over-represented. The profile with the highest average score for family instability and, less strongly, poor communication, was most strongly related to early onset (age 4-6 versus age 7-9). The results underscore the notion that family functioning is best understood as a complex group of risk and protective factors that can relate to development of offending in dynamic ways.

Key-words: Family-functioning, disadvantaged neighborhoods, problem-behavior, children, delinquency.

Family functioning has long been a cornerstone of theories of juvenile delinquency (e.g., Hirschi, 1969; Patterson, 1982). Certainly, parents seem to contribute to the nature, as well as the nurture side of the origins of delinquency debate (Van den Oord & Rowe, 1997). Several reviews show that many aspects of family life and parenting are concurrently and predictively related to delinquency (Elliott, Huizinga & Ageton, 1985; Hawkins, Herrenkohl, Farrington, Brewer, Catalano & Harachi, 1998; Lipsey & Derzon, 1998; Loeber & Dishion, 1983; Loeber, Farrington, Stouthamer-Loeber & van Kammen, 1998; Loeber & Stouthamer-Loeber, 1986; Rutter & Garmezy, 1983; Wasserman & Miller, 1998; West and Farrington, 1983).

Most of the studies summarized in reviews show bivariate relationships between aspects of family functioning and juvenile delinquency. Although these studies provide clues about which factors are particularly strongly related to delinquency, they do not show which family factors tend to co-occur and form profiles of risk and protection. Even though multivariate analyses researchers are used to identify multiple variables that relate to juvenile offending, the analyses do not reveal what proportion of families are characterized by what co-occurrence or profile of handicaps and strengths.

In contrast, some studies developed summary scores to ascertain the cumulative risk of several family handicaps. For instance, McCord (1979), in the Cambridge-Somerville study, used a scale of seven different parent behaviors to predict the number of convictions of youngsters. West and Farrington (1973) related a cumulative scale consisting of parent criminality, low family income, and poor parental behavior to later convictions. Cumulative scales like these usually have more predictive power than individual variables (Farrington, 1985) but they do not point to which family profiles are differentially related to juvenile delinquency.

In reality, different family profiles exist, each with their particular constellation of risk factors and strengths. A different analysis approach has been used to show which family functioning variables cluster to form family profiles (Gorman-Smith, Tolan, Loeber & Henry, 1998; Gustafson & Magnusson, 1991; Magnusson & Bergman, 1988). This technique takes into account that different families are characterized by different profiles of handicaps and strengths, which can then be differentially related to an outcome, such as juvenile delinquency. The advantage of this person oriented approach is that it identifies groups of people, whose handicaps and strengths can be taken into account in intervention or prevention efforts.

In this paper, the classification of families will be related to two concepts that are often seen as playing an important role in the long-term outcome of delinquency: the neighborhood in which a child lives and the age of onset of delinquency. Neighborhoods reflect the socioeconomic and family strengths and deficits which may have an enduring effect on the delinquent behavior of juveniles (Wikström, 1999). However, it is not clear which constellation of family variables is most related to the most disadvantaged neighborhoods. We would expect that families with the worst aspects of family functioning, such as physical punishment and poor supervision, are concentrated in the disadvantaged neighborhoods. Similarly, the issue of age of onset of delinquency, particularly very early onset, is considered an important factor in the length and seriousness of delinquent careers (Loeber, 1982; Moffitt, 1993; Smith, Lizotte, Krohn & Thornberry, 1998). We expect that families who function worst in several areas, such as physical punishment and family instability, are most prone to experience an early onset of delinquency in their offspring. Generally, a very early onset is seen as more genetically driven, thus, one would expect parental deviance to be more strongly related to a very early onset of delinquency as compared to a slightly later onset.

The number of potential variables describing family functioning is large. The question, therefore, is which variables to include. Based on Loeber and Stouthamer-Loeber's review paper (1986) we selected a number of family characteristics which have been shown to be highly related to child conduct problems and delinquency across studies: poor supervision, poor communication, physical punishment, family instability (i.e. the number of caretaker changes), and parental deviance (i.e. criminal history or mental health problems).

We will address the following questions: 1) Using a number of family variables which have shown a strong relationship with delinquency, can we empirically identify different family functioning profiles? 2) Do family functioning profiles differ with neighborhood disadvantage or with the boy's age of onset of delinquency? These questions will be examined with data from the oldest sample of the Pittsburgh Youth Study.

Method

Sample

The Pittsburgh Youth Study consists of three samples of boys who were in grades one, four, and seven when the study began. Potential subjects were randomly selected from the list of all boys in these grades in Pittsburgh public schools. Of those selected, 84.8% consented to participate (N about 850 in each grade). In the initial assessment, information on boys' antisocial behavior was collected from the boys themselves, their parents and teachers. In each grade sample the 250 most antisocial boys were selected for follow up together with an equal number from the remainder. The data we will use are mostly from the first two assessment waves of the oldest sample only. The sample consists of 506 boys, 57.5% of whom are African American and the remainder Caucasian. They were about 13 years of age when the study began. Details of the sample acquisition and data collection can be found in Loeber, Farrington, Stouthamer-Loeber & van Kammen (1998).

Family functioning measures

Because adults and youngsters often perceive the same events differently (e.g., Loeber, Green, Lahey & Stouthamer-Loeber, 1991), care was taken to collect as much information as possible from several informants (the boy and the parent) about each area of family functioning. We use the term 'primary caretaker' to identify the individual who claimed to have the principal responsibility in the household for the boy and who was the respondent in the interview. For the first three variables described below (physical punishment, poor supervision, and poor communication) individual scores from each of these two sources were calculated, and combined constructs were created by summing the scores from each informant. Combined scores were used because having information on two informants increases validity (Loeber et al., 1998; Stern & Kalof, 1996). For the remaining two variables (family composition instability; parental deviance), only caretakers served as informants.

Poor supervision by primary caretaker

Both the child and the caretaker were asked four questions (each scored on a Likert rating scale of 1 = 'almost never' to 3 = 'often') pertaining to the parent's supervision of the boy, which were combined into a single construct. A high rating indicated poorer supervision. Scores for the final variable ranged from 8 to 19.

Poor communication with primary caretaker

The child version of poor communication included 29 items, while the caretaker's version included 30 items. Each variable was z-scored (for the analysis, scores were rounded and a constant was added to make all scores). Adjusted scores for this variable ranged from 2 to 11.

Physical punishment by primary caretaker

One item that tapped whether or not the parent slapped or spanked the boy was administered to both the caretaker and the child. A Likert rating scale of 1 = 'almost never' to 3 = 'often' was employed for this item. Scores for this variable ranged from 2 to 5.

Family instability

This variable represented the number of times a parent or caretaker moved out of, or into, the household, based on the caretaker's responses to a series of questions covering the child's life up to age 15. Scores for this variable ranged from 1 to 9.

Parental deviance

This variable was constructed from three dichotomous variables that each represented separate symptoms: whether either parent (or step-parent) had a criminal background; whether they had problems with depression, anxiety, or suicide; and whether they had substance use problems. A score of 2 for each dichotomous variable indicated that the parents had that symptom, while a score of 1 indicated that the parent did not have that symptom. Scores for the composite variable ranged from 3 to 6.

Delinquency onset and neighborhood measures

The *Age of Onset of Delinquency* construct, based on the self-reported delinquency measure, was made by determining whether or not the subject had performed particular acts during an assessment phase. These acts ranged from minor to severe delinquency (e.g., truancy, theft, attacking someone with a weapon) and included both property and violent offenses. If a child performed an act, then the age of onset was set to the child's age during that phase (except at the initial assessment, when the child was asked for the specific age at which he performed the act for the first time). Age of Onset is the age at which the subject performed his first act of delinquency, regardless of the severity. Because we wanted to distinguish between very early onsets, we grouped subjects into two early onset categories: 4-6 years old and 7-9 years-old (27.7% and 26.8% of total sample, respectively).

neighborhood disadvantage, based on the 1980 Census, included dichotomous variables reflecting the economics, family composition, and presence of juveniles in each subjects' neighborhood. Each participant's address at the second assessment was linked to the corresponding 1980 Census tract. Economics comprised three items (median family income, percentage unemployed, and percentage of families below the poverty level). Family composition was composed of two items (percentage divorced/separated individuals and percentage households with children headed by a female with no husband present). Presence of juveniles was represented by one item concerning the percentage of 10 to 14 year-olds in the area. Based on a series of 75% - 25% dichotomizations (see Loeber et al., 1998 for details) 29.7 percent of the participants were classified as living in a disadvantaged neighborhood.

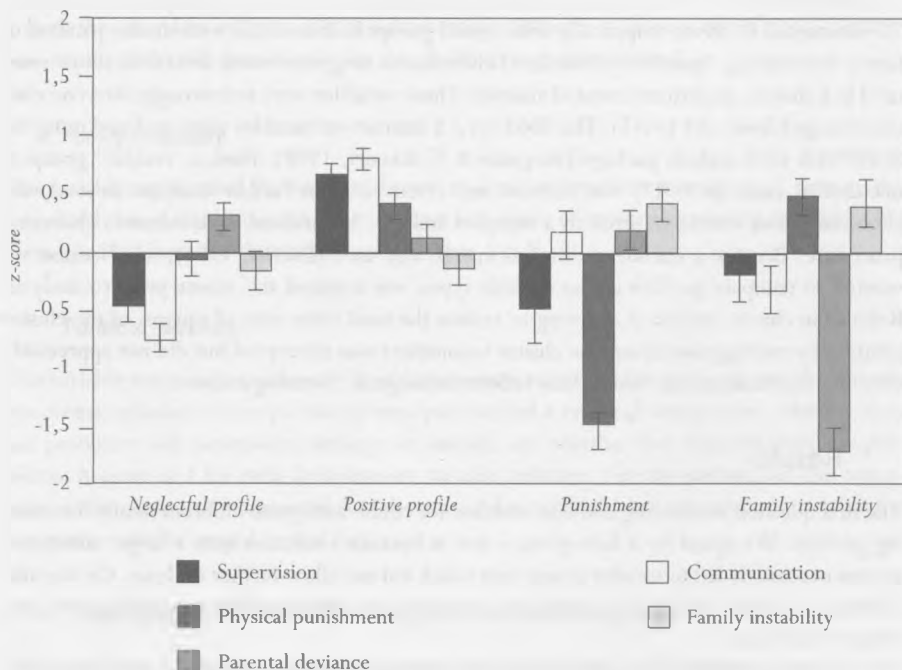
Methodology

We attempted to create empirically determined groups of individuals with similar patterns of family functioning. Specifically, the five family functioning constructs described above were used in a cluster, or pattern oriented analysis. These variables were not strongly intercorrelated (r s ranged from $-.04$ to $.45$). The 506 boys $\times$ 5 interaction variables were analyzed using the SLEIPNER v2.0 analysis package (Bergman & El-Khoury, 1998). First, a 'residue' group of unclassified cases ($n = 17$) was formed and removed from further analysis. Second, the remaining cases were submitted to a complex linkage, hierarchical agglomerative clustering procedure. Because a euclidean distance matrix was used (Everitt, 1993), and because we wanted to compare profiles across variable types, we z-scored the scores prior to analysis. Relocation cluster analysis (i.e. trying to reduce the total error sum of squares of the cluster solution by moving cases from one cluster to another) was attempted but did not appreciably alter the classification; the results thus reflect the original clustering solution.

Results

The first question we investigated was whether we could distinguish different family functioning profiles. We opted for a four-group solution because a solution with a larger number of groups necessarily led to smaller group sizes which did not allow further analyses. On the other hand, a solution with less than four groups would have eliminated groups with specific patterns of handicaps.

The mean family functioning scores from the final clustering are presented in Figure 1. The error bars show the 95 percent confidence interval. Thus, a variable with an error bar that does not cross the zero line is significantly different from the mean of the whole sample for that variable. All variables are scored so that a higher value denotes a more positive attribute. For ease of exposition the family functioning profiles have been given labels. The first family functioning profile ($N = 184$) is characterized by poor supervision and poor communication but above average family stability. This profile has been labeled the neglectful profile. The second profile ($N = 175$) shows above average scores for supervision, communication and physical punishment (i.e., low punishment). This profile is the most well adjusted of all four and has been called the positive profile. The third profile ($N = 64$) is characterized by poor supervision and physical punishment but scores better than average on parental deviance. Because of the very negative score for physical punishment, this profile is called *punishment* profile. The fourth profile ($N = 57$) features low parental stability and below average communication. In addition, this profile has above average scores for physical punishment and parental deviance. It is labeled family instability profile. Thus, the profiles show different patterns of weaknesses and strengths. The punishment profile and the family instability profile show, however, the largest family functioning deficits.

Figure 1. *Family functioning profiles*

The next question concerned the relationship of the family profiles to different levels of neighborhood quality and different ages of delinquency onset. We performed a cross tabulation to show what percentages of the family profiles were in disadvantaged neighborhoods, the result of which can be seen in Figure 2 (next page). The horizontal line at 29.7 percent indicates the percentage of the sample living in disadvantaged neighborhoods. The overall Pearson chi-square shows that the family profiles are not equally divided across the two different kinds of neighborhood ($\chi^2 = (3) = 12.62, p < .01$). The punishment profile is over-represented in disadvantaged neighborhoods ($\chi^2 = (1) = 7.10, p < .01$). The positive profile is under-represented ($\chi^2 = (1) = 5.11, p < .03$).

With regard to the early onset of delinquency (4-6 year olds), compared to a somewhat later onset (7-9 year olds), the results are depicted in Figure 3 (next page). The horizontal line shows that of the two groups of onset combined 51.3 percent of the participants were placed in the early onset group. The overall $\chi^2 = (3)$ was 6.97 and was significant only at the .07 level. It is remarkable, however, that 73.1 percent of the family instability profile boys with an onset before age ten were in the four-to-six year old onset group ($\chi^2 = (1) = 4.94, p < .03$).

Figure 2. Percentage subjects of each Profile residing in a disadvantage neighborhood

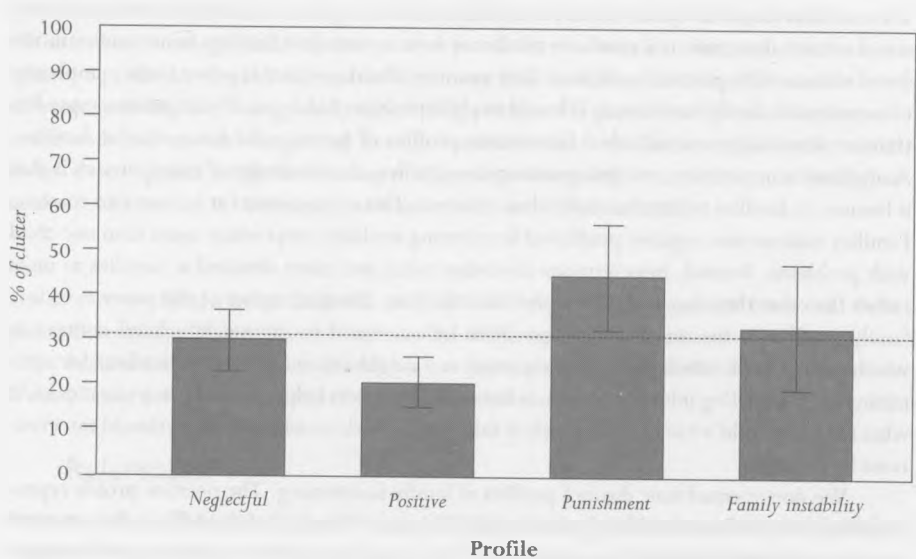
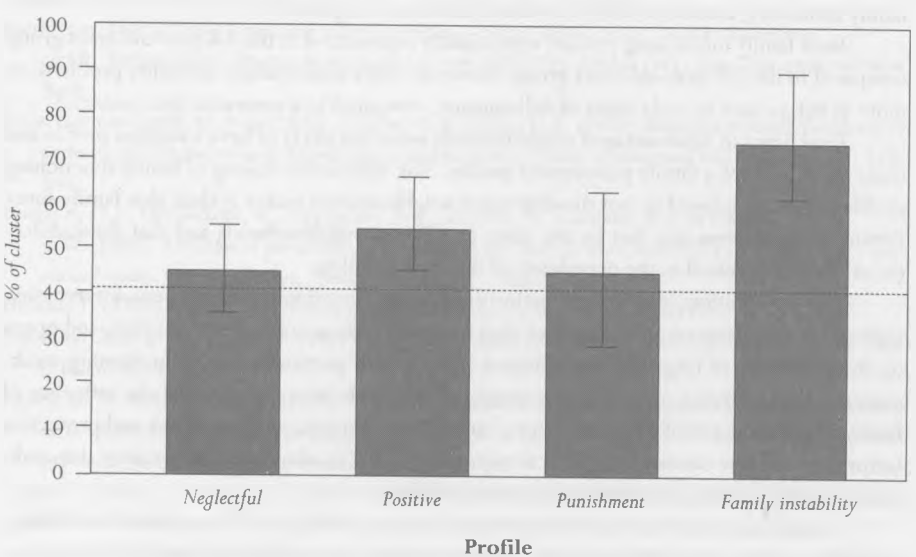


Figure 3. Percentage of subjects of each Profile having an age 4-6 onset compared to an age 7-9 onset



Discussion

There is little doubt that practitioners and policy makers often are baffled by the complexity of social science data, and as a result do not know how to translate findings from studies in the social sciences into practical solutions. One example illustrated in this paper is the complexity of variations in family functioning relevant to child problem behavior. This paper attempted to translate knowledge on individual factors into profiles of factors valid for particular families. Aside from summarizing and distinguishing key profiles, the advantage of this approach is that it focuses on families rather than individual children. This is important for at least two reasons. Families with certain negative profiles of functioning are likely to produce more than one child with problems. Second, interventions nowadays often are more directed at families as units rather than that they focus on single problem children. Another aspect of this paper is to link family profiles to the onset of child problem behavior and to the neighborhood context in which such behavior took place. We see onset and neighborhood context as markers for optimizing the channeling intervention funds because the aspects help to answer two questions: At what time in a child's life can intervention take place? And, to which settings should interventions be directed?

We documented four distinct profiles of family functioning. The positive profile represents the most well adjusted family functioning, whereas the neglectful profile is characterized by deficits in supervision and communication. The punishment profile and the family instability profile contained smaller numbers of families than the first two profiles; they evinced however, the largest incidence of physical punishment, combined with poor supervision, and family instability, combined with poor communication, respectively.

Most family functioning profiles were equally represented in the 4-6 year-old onset group compared to the 7-9 year-old onset group. However, boys with a family instability profile were more at risk to have an early onset of delinquency, compared to a somewhat later onset.

Boys living in disadvantaged neighborhoods were less likely to have a positive profile and more likely to have a family punishment profile. The differential linking of family functioning profiles to disadvantaged or not disadvantaged neighborhoods makes it clear that family functioning constellations may not be the same in different neighborhoods and that these differences can be expressed in the prevalence of different profiles.

The recognition of different patterns of family functioning strengthens intervention approaches that focus on families rather than on individuals as units of intervention, and opens up the possibility of targeting interventions to deal with particular family functioning weaknesses and to capitalize on family functioning strengths. It is a reminder that the influence of family life consists not of single elements, but of a complicated package of risk and protective factors. So far, few studies have tried to examine family functioning profiles rather than individual variables (but see Gorman-Smith et al., 1998).

The present study has several limitations. Because the size of the sample was not large enough to develop the profiles on one half of the sample and replicate on the other, we do not know how stable the findings are. As a follow-up, however, we will be able to replicate the analyses on a younger sample of the Pittsburgh Youth Study.

The second problem has to do with the selection of the variables that are chosen to be included in the profiles. We based our selection on a large meta-analysis (Loeber & Stouthamer-Loeber, 1986) rather than on selecting variables that in our study had the strongest relation with the outcome. However, there are many other possibilities of variable selection, such as on the basis of a particular theoretical model, which may lead to different results. The usefulness of different methods of creating family functioning profiles will depend on their stability in replication and their ease in recognizing them as reasonable descriptions of certain families. With these two conditions family functioning profiles can become important tools in predicting particular problems and in optimizing preventive and remedial interventions.

Note

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