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TITLE: Adversity and Child Development in South Africa:
Effects of socio-economic status and violence on
functioning at Age 4.

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Adversity and Child Development in South Africa:

Effects of socio-economic status and violence on functioning at Age 4.

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Introduction. The social and political transformations currently under way in South Africa provide reasonable grounds for optimism about the future of this country and of most of its people. However the seeds of violence, social upheaval, and economic injustice planted and nurtured during the apartheid era continue to yield a bitter and abundant harvest. This enduring legacy of violence and poverty is endemic to the daily experiences of many African families(Ramphele, 1993). A purpose of this report is to review empirical data from an investigation of the development of South African children in order to determine whether socioeconomic status (marital status, educational status and access to material resources) and their concomitants (exposure to community and family violence) predict behavioral and emotional functioning. The central question to be addressed here can be stated as follows: By age 4 are the offspring of parents with limited access to material resources and who live in dangerous areas more likely to exhibit decrements or acquire competencies in behavioral and emotional domains than the offspring of their more advantaged counterparts?

Empirical Studies of the effects of adversity on functioning. Dawes and Donald, (1994) present several studies which underscores the detrimental effects of adverse social environments on children in South Africa. As a whole the volume provides a compelling account of the disruptive effects of violence and the debilitating effects of poverty on health, cognitive development, psychological well-being and stability of family and community life. Similarly, Burman & Reynolds(1986) and Straker(1992) have documented convincingly the destructive consequences of oppression and violence on children's physical well-being, academic functioning and emotional development. In addition, McLoyd(1990) has shown that economic hardship is associated with emotional distress and premature termination of education in children. Data gathered at the Hopkins Prevention Research Center with inner city and poor children have noted depressed mood in non-clinical, non-referred children residing in poor communities that were on average equivalent to levels for children and adolescents hospitalized for clinical depression. These mood disturbances are particularly prevalent among young African American males in elementary and middle school and in adolescent females. Poverty, stands out as one of the most frequently identified risk factors associated with risk of developmental deviations. For example, chronic poverty and instability of family life in childhood together increased considerably the risk of psychological, social and academic impairment in adolescence and early adulthood(Werner and Smith, 1989). Evidence for the impact of violence and poverty on children is also found in the differential rates of stress related symptoms for children living in more dangerous and poor informal settlement, squatter camps than for those living in relatively more secure formal housing communities. Stress related symptoms such as headaches, wetting/soiling and being scared was higher for Black children living in informal settlements in South Africa than for those living formal

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housing (headaches 28% vs 16%; wetting/soiling 22% vs 16% and being scared 18% vs 13%)(Robertson, 1994).

As a group, these studies demonstrate that violence and poverty are unquestionably linked to an array of adverse developmental outcomes in children. However we are also uncertain about how early in life these adverse consequences manifest themselves(Dyson, 1990; Felner, 1984). With the exception of the current study, few efforts have been undertaken to look systematically among children younger than 7 for early effects of poverty and violence. Consequently, children so affected may enter school with subtle undetected cognitive, emotional or behavioral difficulties. However, in time these children experience a noticeable slowing of academic progress. This becomes a self-defeating cycle of decreased academic effort, impairment of self regulation, non-compliance, and increasingly serious discipline problems and under-achievement that belies an apparently normal start in the early years of school.(Barbarin & Soler, 1993)

As convincing as these studies are, they do not reveal much about the specific pathways through which poverty and violence influences development. In fairness, we are in the early stages of demonstrating main effects and the discourse has not yet progressed to the second level of explanatory mechanisms. However, it appears that material deprivation by itself does not fully account for the developmental lags and deviations observed among poor children. Instead, several concomitant factors which co-occur with the material deprivation of poverty may be causally linked to behavioral and emotional problems of children. These include: parental education, family structure, physical quality of housing and community. Recent empirical and conceptual work suggests that the impact of poverty on psychological development may occur indirectly through its impact on family health relationships and qualities of community life(Duncan, Brooks-Gunn & Klebanov, 1994). These can be conceptualized as sequelae of poverty. They include discord or violence within the family and aspects of community life related to crime victimization, concerns about personal safety, availability of supportive structures, and access to social outlets that meet social, cultural, recreational and religious needs. As a consequence we have come to view poverty as a multifaceted phenomenon that is associated with an array of psychological challenges, material needs and community conditions which shape the environment in which children grow and develop.

How do poverty and violence affect development? Poverty, its concomitants and its sequellae influence academic and behavioral adjustment indirectly through their direct impact on emotional functioning.(Duncan, Brooks-Gunn & Klebanov, 1994). Because of poverty, and its sequelae in the family and neighborhood, children are subjected to highly aversive experiences. These experiences trigger unpleasant emotional arousal which can become chronic and interfere with daily functioning at home and at school. Depending on the family resources, these aversive emotional states may find expression in depression, anxiety, alienation, oppositional behavior, aggression and poor school adjustment. Moreover, these conditions may also create a psychological environment that promote wariness, chronic fear, and concern about threats to the physical safety of self and of one's family. Distractibility, high levels of emotional arousal, sadness, irritability may be a way children learn to cope with their environment. Adversity that children experience may flood them with affect, lead them to a chronic state of affective disorganization,and

thus undermine their capacity to cope or delay acquisition of self-regulatory behavior. .Alternatively, in defending against the distress children may acquire coping responses such as impulsivity, aggression, indifference to the needs of others, pre-mature self reliance, and a lack of responsiveness to direction from adults. Other children may fail to develop the empathy and self-control needed for positive cooperative interactions with peers. They may begin to overreact to provocation from other, perceive threat where none exists and approach social situations with fear, shyness and a lack of social skills.. Of equal interest are those children who under similar circumstances ward off distress without compromising emotional development.

Background and Study Rationale. Birth to Ten is a longitudinal birth cohort study, conducted in the Metropolitan area of Johannesburg and Soweto in Guateng Province, South Africa. The goal of the study is to assess the biological, environmental, economic, and psychological factors associated with survival, health, well-being, growth and development of children living in an urban settings (Fonn, DeBeer, Kgamphe, McIntrye, Cameron, Phadyachee, Wagstaff, & Zitha, 1991). It is supported under the Urbanization and Health Programme within the Medical Research Council of South Africa. One impetus for this study was a concern about the consequences for children of the massive influx of blacks to urban areas seeking employment and escape from rural poverty. Families were drawn to urban centers in the hope of improved access to health, education, decent housing water, sanitation and employment. For many these hopes have only been partially realized as they encounter new problems of crowding, political violence and crime. Little is know about how the social and cultural dislocation resulting from rapid urbanization impacts families and children. Investigators associated with Birth to Ten are addressing a number of research questions related to health and well-being of children and families including environmental exposure to air pollutants such as lead and tobacco smoke; prenatal alcohol and tobacco consumption; child care; immunization in the health service usage; precursors of cardiovascular disease, growth; feeding practices and nutrition; dental health; socioeconomic status; the quality of life experienced by children born in high risk groups; language development and hearing impairment.

Methods

Population. The geographic area of the study includes all the suburbs of Johannesburg, Soweto served by the Johannesburg and Soweto City Councils. The suburbs of Diepkloof, Meadowlands, Dobsonville, Pimville,. Eldorado Park, Coronation, Riverton, and Klipspruit. The estimated population for the areas included this geographic area of the study varied with the source of the data. Using adjusted data from 1985 census and clustered samplings with Johannesburg and Soweto areas. The best estimates for the population is 1,844,528 in the combined Johannesburg, Soweto area. Of the overall population 28.9% are white, 8.2% are colored or mixed race, and 3.6% are Asian or Indian and 59.4% are black. However, 84.2% of the black population resided in Soweto.

Sampling Frame. Local government regulation requires hospitals, clinics and registered health professionals such as midwives notify the local health authorities of all

births. These notifications are maintained in an official birth register which includes the following information: mother's name; surname; address, telephone number, parity, age, results of blood tests conducted during pregnancy, marital and employment status; date, place, time and type of delivery, identity of the health professionals attending the delivery, infant's sex, birth weight, estimated gestational age, apgar scores, and mortality status at birth. Information on mother is obtained verbally from the mother or copied from preexisting clinic files and identity documents. Home births attended by non-registered personnel typically are not recorded and therefore not included in sampling frame..

These birth registers were used to analyze birth patterns prior to the construction of the study sampling frame. This analysis suggested that approximately 2,680 children were born each month in the study area. 39% of the births occurred at Baragwanath Hospital in Soweto. No marked monthly or seasonal patterns were observed. A decision was taken not to enroll deliveries during the summer holiday period November to January because many people leave the Guateng area to visit other parts of the country. The same decision was reached for the period during the cold winter months July and August.

Criteria for inclusion and exclusion from the study cohort are as follows: 1. All births occurring between April 23 and June 10, 1990. Records of these births are available from the Transval Provincial Administration, delivery centers and private gynecologists. 2. Birth registers of local authorities were consulted to identify additional names not included in the other sources. 3. Cohort includes all babies who were born in and continue to reside in the area at least 6 weeks postpartum. The data suggest that 20% of all births are to mothers who do not usually reside in the area study. No additional children have been added to the cohort after it's initial construction. Efforts are made to follow children and families leaving the area by seeking out addresses and relevant next of kin information. Data was gathered on all births occurring one month before and one after the cohort conception data. This is used to test the representativeness of the study cohort to these populations.

Recruitment and Enrollment: Birth-to-Ten cohort. During the seven week period from April 23, 1990 to June 8, 1990 5,460 singleton births occurred among women who gave permanent addresses in areas of Soweto and Johannesburg. The project recruited mothers and their babies who met the enrollment criteria over a 15-month period beginning pre-natally and extending up to 12 months past delivery. Consequently, 74% of all the estimated births (n=4029) were enrolled in the study. Mothers or primary care givers were interviewed one or more times at ante-natal, delivery, 6 months post natal, and one year postnatal. Contact with parents was maintained beginning in the ante-natal clinics, and continuing in the well baby clinics operated by the local authority(government). Follow-up was facilitated by the issuance of special cards which identified participating mothers and children to health professionals who maintained records of their visits. Moreover, 2,100 of these children were seen when the children were two and four years old. It is the goal of this project to following these children up, at least until they reach the age ten..

Community Involvement. Community organizations, advisory groups, civic associations were notified of the study prior to its inception. In addition, efforts were made to develop the close working relationship with the town councils and local

authorities in order to facilitate the study. A random group of parents were invited to sit on an advisory committee whose role is to advise the research team on the acceptability of practice and procedures used in this study. Confidentiality of participating families was observed.

Participating Mothers and children. The data presented in this report are those of mothers and children(N=1,232) who were successfully contacted March through June of 1994 and with whom complete data from the 4 year follow up interview are available. Most of the participating mothers were identified as Black (87%). The remainder of the sample was Colored (10.1%), Indian(2.4%) and white(.5%). Mothers ranged in age from 14 to 46 years old (Mean = 25.3 years,s.d.= 6.3). The most common primary languages for mothers were Zulu(38%), South Sotho(18%), Tswana(12.5%), and English(5.5%). Afrikaans, Xhosa, Swazi, Tsonga, Venda and Pedi were each spoken by less than 5% of the mothers featured in this report. With respect to area of residence, 68% of the mothers resided in Soweto, 19% in Diepmeadow, 12% in Indian and Colored residential areas, 1% in suburban Johannesburg and .2% in inner city Johannesburg. About 49% of mothers were employed, 15% were unemployed and seeking work and 36% did not report employment status. Females made up 50.9% of the children in this report. The birth weight of children referred to in this report ranged from 1 to 4.8 Kilograms (Mean= 3.1, s.d.=.51)

Interviewers Interviews were conducted in person by a of a relatively stable staff of 9 African interviewers, seven women and two men. They were selected because of their knowledge of the community and of their language ability. They were often active and well known in their communities. Some had extensive professional experience with young children as teachers or operators of pre-school programs for children. Interviewers were involved in the multiple waves of data collection. They tended to interview in the same sections of the metropolitan area and consequently became well known to the mothers, the children and their families. Interviewers were provided a conceptual foundation in the content of the interviews and were trained in methods of research interview. Supervision was provided by a project manager/research investigator who reviewed all completed interviews prior to data entry.

Data Collection and Questionnaire Design. Questionnaires were developed to using a semi-structure format with both close-ended and open-ended questions. These questionnaires were transited to the three primary languages, Afrikaans, Sotho, and Zulu from English and then back-translated to detect any problems of inadequate translation. Families speaking other languages were usually interviewed by a native speaker, for example, in Shangan, Venda or Sestwana who then translated the English questionnaires for the families.

Interview Procedures. At each of the scheduled contacts (ante-natal, 6-month post-natal, one year, and two year, and four year) participating families are contacted first by mail and then by telephone to schedule the mother and child for personal interviews at Baragwanath Hospital or a local health clinic. When it was inconvenient for parents to come to the hospital or clinic, interviewers went to their home. Parents are told that the procedures would require a 2-3 hour period to complete the interview and to measure the child's physical and psychological development. At the time of the interview,

R5 (less than $1.50) was giving to mother to defray the cost of public transportation to the interview site. In addition, food was provided the parent and the child. More often than not, mothers accompanied their child to the interview. In some cases both parents arrived. Interviews with the father alone or primary care takers occurred in those instances in which the mother worked and could not be excused by her employer. At the time of the interview, children physical anthropometric measures were taken of the child weigh, height, body fat, hearing and vision screen were undertaken. In addition, several cognitive measures were administered to the child. Parents were asked to provide information about the family's social economic status, child-rearing expectations and practices, as well as health experiences, illnesses, accidents, and the general health of the child. Psychological and behavioral measures were also obtained through self report of the parent.

Measures

Factor-analytically derived scales of economic adversity and socio-economic status.

Background. The interview included a variety of questions intended to assess the economic well-being and the social status of the family. These items correspond to questions widely used in indexes of poverty and SES. They are relevant to the current study in that they provide a gauge of material hardship endured by a family.

The development and use of a scale of economic well-being and social status presents the researcher with a number of choice points. For example, are material resources to be defined on the basis of the parents joint resources or those of the household in which the parent and child reside or in the extended family. When the father does not reside in the family with the child, should his economic and educational resources be included in calculations of resources available to the child?

A review of the items included in our scales of social status and economic well-being reveal that the mother is given a pre-eminent role in that determination. The justification for this is straightforward. This scale was developed for use in a study of the effects of economic deprivation on child physical, social and emotional growth. It emphasizes aspect of family structure and organization most relevant to child development. In South Africa as in the U.S. child rearing environments are diverse in form and fluid in membership. Increasingly children are being raised by their unmarried mothers or other female caregivers within a wide range of household and family structures. For a variety of reasons, fathers may be present only episodically. For the child, the mother is the constant in this dynamic situation. Employment in the formal sector occurs at a higher rate for mothers than fathers. Consequently, mothers with partners are increasingly the functional if not symbolic head of household, the primary wage-earner and the primary guardian for children. For this reason the mother, her education and marital status is pivotal in assigning social status to the family unit that provides the context for child development.

An summary index of socio-economic status has been created from the demographic data collected in this study. This index includes the following components: social status, marital status, education, housing, and consumption. Questions related to each of these dimensions of social and economic status were analyzed separately at first and then combined to form a summary indicator of economic status which will be used as a proxy for economic hardship or poverty.

To obtain information about variations in the socio-economic status of families questions were asked of parents in several domains: household composition, cash income, quality of housing, and marital/co-habitation status. The quality of housing was assessed through question on the number of rooms in the home available for sleeping, type of home (shack to single family home), availability of a separate bathroom, a separate kitchen, refuse pick-up, electricity, water , toilet, ceiling, type and condition of roof, paint inside and outside, and the presence of vermin(flies, rats, lice, bed bugs, cockroaches), or serious air pollution. To evaluate mother's social status information was obtained on the traditional indices of status: education, occupation, and employment. If married or co-habiting, similar information was obtained on the partner..

Role of household income data in assessing economic adversity. The validity of reports of cash household income was difficult to judge for several reasons. First, the mothers often was not the primary wage earners were not privy to wage income. Moreover, the veil of secrecy surrounding cash resources and concern about government tax agency access to information led to underreporting of income even when it was known. High rates of unemployment among the families in the study(estimated at 50-60%) left no alternative to the informal or non-cash economy. Thus for many families, actual cash income was not the best indicator of goods and services available to families who relied on bartering and non-cash exchanges to acquire goods and services they needed. Although information was asked about household income, it was incomplete due to lack of knowledge on the part of the informant or an unreliable indicator a family's resources. Data on household consumption is used as a proxy in order to address many of the problems associated with reports of cash income. Consumption was assessed by questions related to type of fuel used for cooking and heating, possession of a TV, radio, car, refrigerator, washing machine, phone, toys for children, pets.

Factor analytically derived scales. All the disparate measures of economic adversity and social status were subjected to factor analysis. This procedure accomplished two methodological goals; 1) reduction of the multiple data elements into smaller number of discrete variables and 2) the development of internally consistent psychometrically sound scales measuring constructs of theoretical and practical significance. Four factors emerged from this factor analytic strategy.:

| 1. Social Status of Parents | This factor includes mother's marital status and education. If the mother is married or has a partner the mother's educational score is averaged with that of the partner to produce a single educational score. |

2. Housing Accommodation	This factor refers to the type of housing, whether it has a separate kitchen, and the number of rooms available in the house for sleeping.
3. Housing Amenities	This factor includes separate bathroom, type toilet, washing machine,), and
4. Consumption	This Factor refers to the possession by someone in the household of a refrigerator, TV, phone and car to which the mother and child has access.

The empirical and conceptual rationale for these items, the factor analytic procedures and the psychometric performance of resulting scales are described fully by Barbarin, Mohanlal and Richter(1996). See Table 1 for the items comprising the final scale.

Insert Table 1 about here

Measures of Violence

1. Documented Incidents of Community Violence- Archival data collected and maintained by the Human Rights Committee and the Center for the Study of Violence were obtained for each of the communities in which study informants resided. The data included the number of people injured, as a consequence of political violence, murdered and arrested under suspicion of involvement in political violence for each year from 1990 to 1994.

2. Key informant ratings of community safety   A Q-sort method was used to obtain subjective ratings by long-term residents and service providers with first hand knowledge of the metropolitan Guateng Province. . Five raters were selected because of their detailed knowledge of the distinct communities in the study areas. Raters included a high level local authority official involved in planning and administration for Soweto townships, a taxi driver with over twenty years experience driving in the neighborhoods, a white anthropologist active across a range of communities, the owner-operator of a crèche (nursery school) and the lead interviewers for the research project who did home visits throughout the metropolitan area including the exclusive white suburbs. These persons possessed detailed and broad knowledge of the distinct communities because they were life-long residents of the area and their work required intensive involvement across communities particularly in the black, Indian and colored townships. Five key informants were asked to complete a Q-sort of the communities along the dimension of danger and violence. The names of 75 communities/suburbs were written on index card. Informants were given the cards and asked to sort them into one of six groups. The groupings were labeled for them in the following way:
   1. Most Dangerous and Unsafe of all the suburbs- Acts of violence are a very common occurrence. Community is characterized by very frequent violent crimes such as shootings, murders, rapes, muggings, house break-ins , car-hijackings, political violence, taxi-wars, domination by gangs, etc. Something is

always happening and outsiders rarely enter this area. Community is viewed as unsafe even by long time residents. High levels of resident-on-resident crime.

2. Somewhat Dangerous- These communities are viewed as dangerous and unsafe for everyone but to a greater extent by outsiders than residents. Violent events occur frequently but are not constant. Gangs may operate here but do not control the community. Car hi-jackings and muggings may be common for outsiders who hesitate to enter area alone.

3. Both safe and dangerous. These communities have sections or times when they are more dangerous than other periods or time. The area is safe for those who avoid risky areas, persons or times. .

4. Somewhat safe and secure. These areas are usually safe and provide a moderate level of security for residents. Violent crimes such as shooting, muggings, rapes and murders can occur but are- rarely experienced by residents. The community is a almost always secure.

5. Most safe and secure of all the suburbs. These areas have the highest level of security and are viewed universally as the safest areas. These are safe almost all the time. Gang activity is non-existent. Violent crimes are rare. Reports of danger are most unusual.

6. Do not know community well enough to rate on this scale.

Category six was treated as missing data and the ratings from 1-5 were averaged to achieve a safety ranking for each community. These subjectively based rankings correlated highly with the objective crimes statistics for the areas on which crime data were available.

3. Personal experience and impact of violence. Each parent responded to questions about whether a family member had been injured or killed in an episode of violence and the extent to which they had been personally affected by community violence.

4. Family violence. Informants were asked to respond to a series of questions about the occurrence of physical conflict or violence within their own family.

Measures of Development at Age 4

In the year 4 interview, informants were asked to indicate whether or not the target child had already attained one of several developmental milestone or was exhibiting one of a number of symptoms of behavioral, social and emotional mal-adjustment. In all, parents responded to 12 questionnaire items which were factor analyzed to reduce the data to a smaller number of scales with empirical and conceptual significance. Questions related to enuresis, oppositional behavior, unhappiness, daydreaming, fearfulness, poor appetite, clumsiness, stuttering, poor speech, unusual habits, problems with peers, aggression, poor sleep patterns. The factor analysis was performed as part of a more comprehensive study of the development of BTT children up to age 5 (See Barbarin, Richter & DeWet, 1996). The results were five scales ass anxiety, immaturity, speech and conduct problems.

Factor I- **Behavioral Self-Regulation-** include oppositional behavior, irritability, aggression, daydreaming and the inability to get along with other children.

Factor II- **Speech Disorder** refers to stuttering and difficulty in understanding the child's oral communication.

Factor III- **Anxiety** includes symptoms of fearfulness and disturbances in eating when food was available.

Factor IV- **Immaturity-** Consists of a set of items such as nocturnal enuresis, clumsiness, and immature habits such as nose-picking which are interpreted as a failure to attain normal developmental milestones. It is viewed as a sign of immature development.

Research issues and Statement of Problem: The proposed study examines the relationships among socio-economic status, violence and social emotional adjustment in a representative group of 4-yr. old South African children. In tandem, violence and poverty are expected to create an environment inhospitable to the physical and emotional development. The research tests the claim of an effect of adversity on behavioral and emotional development. In going beyond the test of generic effects of poverty, this study assesses the claim that low educational status, being without a partner, lack of access to material resources and community violence constitute environments associated with sub-optimal emotional and behavioral development of children? Conversely the research raises the possibility that these social conditions have beneficial effects and act as challenges which ironically elicit accelerated development. For example, do they promote maturation placing a premium on early maturation, development of biological self regulation such as control over bladder and bowels, autonomy and the capacity for self-care..

Results

The results begin with a presentation of data that describe the level and range of material and social resources available to mothers of the children in the sample. Because of the important place of community level violence in this investigation, information is then provided on the communities from which the parents and children are drawn. Most relevant will be data on community safety ratings. In addition, violent incidents and population density will also be presented. This will be followed by analyses that address the central question about the relationship of socio-economic status and violence to child functioning.

Economic and Social Resources. A large proportion of mothers in this study are raising children in the absence of a stable, co-habiting heterosexual partnership. Of the 779 mothers for whom marital status information was available, 60% are not married and do not have a co-habiting partner. This does not imply that parents are raising the child alone.

Nor is it is synonymous with female headship of the household. Most live in extended family situation with other relatives in the household, most commonly their mothers and siblings However it does suggest that mothers who retain primary responsibility for their children do so without back-up support that is often associated with having a committed partner to share in the parental role.

The group is about average with respect to educational attainment. Almost all of them received education beyond Standard 3, which is usually seen as the point at which literacy is attained. A little more than one in five completed senior high school and passed the matric examination(21%). With respect to housing resources, there was a wide range among mothers with the group as a whole appearing relatively advantaged in that domain. Although a small proportion (4.3%) lived in shacks the overwhelming majority (85%) lived in homes that were either private or shared with family. The remainder lived in a room, flat or garage. This relative advantaged situation was also reflected in the housing amenities to which they had access. Eighty two percent lived in homes with separate kitchens, 30% had homes with separate baths; and 33% had inside flush toilets.

By the standards of South African Blacks, the mothers in the sample would be considered average with respect to access to material resources as reflected in their consumption and possessions. Slightly more than 73% had a television in their home; 58% had access to a phone in the home; 29% lived in household that had a car but only 15% lived in homes that had a washing machine. In all the sample, possessed a diversity of social and economic resources. This variability in economic and social resources enabled me to test the effects of access to resources on child development.

<u>Community: population density, safety and violent incidents</u>. The communities from which the sample was drawn shows similar diversity. Each of the major suburbs in Soweto and Diepmeadows is well represented in the sample. The white suburbs are the least well represented because whites, whose representation in the child-bearing population is already small in relation to Blacks and Coloreds tended to drop out of the study at higher rates than other groups. Table 3 presents data on the suburbs. Included on the table are the safety ratings made by the panel of 5 key informants, the number of deaths and injuries attributed to political violence recorded as occurring in that suburb during the period 1990-1994. These statistics omits deaths and injuries not attributable to political crimes. This statistic is used as the best available proxy for general violence. Data on violence in general is not available due to the lack of systematic and organized - keeping of crime statistics during the period of study. In addition the table presents data on the number of household and the number of persons person per household for all the suburbs in Soweto. These estimates are based on a sample survey conducted in 1995 on behalf of the Soweto local Council. It is presented here with knowledge of the controversy surround these and all other estimates of the Sowetan population. According to these figures the total population estimate for Greater Soweto is slightly over 1.1 million. This figure is hotly contested by many who argue that it is a gross underestimation of the population. Other estimates range as high as 2.2 million. These figures, controversial as they are, give a picture of the relative size of suburbs and the population density of each. This information is useful as a background in evaluating the environment from the standpoint of child development.

The ratings of community safety presented in Table 3 represent the average across the five key informants. The areas rated as least safe were Emdeni, Zola, and Joubert Park. Areas rated as the most safe were Dube, Tladi, Bellavista and Bellevue. The northern white suburbs are generally regarded as safe but are not included in this report of ratings because none of the sample used in this report are drawn from those areas. Many of the communities have distinct subsections which are viewed very differently in terms of safety. For the sake of brevity and space, ratings of the different sections and extensions of suburbs were collapsed in Table 3. Thus some suburbs may have achieved a higher or lower mean rating than their reputation would suggest or than in actuality they were given by raters. This collapsing was not done for statistical analyses of effects of community on individual mothers and children.

Insert Table 3 about here

In number of households Diepkloof is the largest by far. However Zondi has the highest average number of persons residing in a household unit. Although the generally expected relationship between density and danger holds true in the case of Zondi, there is not a significant correlation between the two. Significant correlations were obtained between the number of household units and the number of injuries(Pearson product moment correlation(r) = .45, $p \leq$ .04) and the number of arrests(r = .78, $p < .001$). A similar pattern was observed between total population and injuries(r = .50, $p < .02$.) and arrests(r = .84, $p < .001$). This says that higher number of arrests and injuries occurred in suburbs with larger total populations and a greater number of housing units.

Table 4 presents the means, standard deviations and the results of the analysis of variance for personal and community political violence by safety ratings. These data support the validity of the safety ratings. They show a significant relationship between the safety ratings and the frequency with which mothers personally experience violence and the frequency with which incidents of violence are recorded. Inspection of the group means reveals that the number of reported violent incidents is highest in the areas rated as most dangerous and somewhat dangerous. Conversely, the smallest number of recorded incidents occur in communities rated as safe. In the measure of personal experience of violence, smaller numbers represent more violence. Mothers in the most dangerous and somewhat dangerous suburbs experienced higher rates of personal violence than mothers in suburbs rated as somewhat safe/secure. Tests of these relationships show that these trends are significant.

Insert Table 4 about here
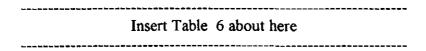--

Regression Analyses. Analyses were conducted to assess whether components of social status and economic well being predict the four developmental outcomes of children in the study at age 4: Behavioral self-regulation, speech disorder, anxiety and immaturity. Violence and socio-economic status do not significantly predict speech disorder and anxiety. Table 5 shows that violence and social and economic status variable as groups predict behavioral self-regulation. Interestingly, mothers personal experience of violence

and the community safety ratings were unrelated to behavioral self regulation but the combination of injuries, murders and arrests in 1991 and 1992 contribute most to the prediction of self-regulation at age 4. Children from communities with a larger number of violent incidents in 1992 fared less well in regard to the acquisition of self-regulation($t = 2.5$, $p<.011$). However violence in 1991 had a paradoxically moderating effect on problems of self regulation. ($t = -1.96$, $p< .05$). The data on violence during the period from 1990 to 1994 show a very clear downward trend from a high in 1990 to much lower levels in 1994. However the year 1992 has a sharp increase of violence bucking the down ward trend. The lack of a partner for mother and limited access to material wealth had a similar effect. Being single mother predicted problems of self regulation at age 4 ($t = -2.4$, $p< .018$).

Insert Table 5 about here

Table 6 shows that immaturity is significantly predicted by social and economic variables. However immaturity at age 4 was not significantly predicted by violence. The picture on the predictors of immaturity is a bit murky and apparently contradictory. Children who were being raised in more substantial housing(greater number of bedrooms, separate kitchen, not shared) tended to be less mature($p<.04$). At the same time children whose houses had fewer amenities (no toilet, not separate bath, no washing machine) also tended to be more immature. This suggests that children who are not poor tend to be less mature at age 4 and that children whose parents have less access to creature comforts such as a washing machine, a separate bath and an indoor toilet. The lack of the comforts do not necessarily mean that children are in families which are at the lowest end of the economic totem-pole. It is possible that amenities do not distinguish the those with average resources from the desperate poor because the distribution of these housing related amenities did not occur in a free market Many middle class African children whose parents have relatively more resources may find themselves in similar straits as those who would not have the resources to acquire the goods if they were freely available..

Insert Table 6 about here

Discussion

The results show that community violence, social status and economic well being are clearly related to child functioning at age 4. However these effects are focal at this stage of the child's development. The effect sizes are small, though significant. Surprisingly, community level violence is more important in predicting child's status than the mother's personal experience of violence. This suggest a distal macro-environmental mediation of psychological development rather than a proximal effect of violence that is mediated by the impact of mother's functioning on the child.

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Not all areas of development were affected. Speech difficulties and anxiety reactions were not affected by the adverse conditions measured in this study. In the case of speech problems, the findings are not surprising. The early acquisition of language is a complex process that is neurological and physical at it core. The frequency of these problems is low and the bio-genetic pre-disposition to these disorders may override environment at this stage in the child's development.

That anxiety is not predicted by adversity, is less easy to explain. Emotional functioning is the domain most consistently cited in the existing research literature as susceptible to the influence of adverse environments. The search for explanations of this finding must begin with our methods. Our measure of emotional functionig is rather primitive and elemental. It is essentially a screening device. A fuller assessment of anxiety symptoms might yield different results. Second, most of the data showing a relationship between adverse environments and anxiety-depression were obtained with older children and adolescents. It is possible that the effect on emotions does not occur until later in life.

The domains of developmental functioning most responsive to the social environment and material resources are behavioral self regulation and immaturity. Children growing up under circumstances of violence and material adversity tend to have more problems related to behavioral self-regulation than children in less adverse circumstances. Similarly, children of mothers without partners also have more difficulties. Educational level of the mother does not predict these child outcomes.

The data on immaturity suggests that social conditions associated with material disadvantage may contribute ironically to accelerated development. Materially advantaged mothers may place less of a premium on early maturation, tolerate incontinence longer and foster dependence in their young children. Conversely, children in economically poorer environments may be encouraged to develop autonomy and the capacity for self-care.

There are many possible pathways through which material deprivation and violence may affect maturity and behavioral regulation of children. Exposure to violence, degraded physical environments, socially unstable communities, uninvolved fathers, and family conflict may overwhelm and distress children and undermine their capacity to develop and employ effective self regulatory strategies..

In this study the total amount of variance accounted for by socio-economic status and violence is small. Other factors must also operated to influence the outcomes observed in poor children. Additional research must focus on the processes or resources that provide protection against adversity. For example, the quality of family life is considered an important factor moderating the effects of adversity on children's adjustment. When a family functions well, it may imbue the child with a sense of mastery and personal efficacy by providing opportunities through which the child can experience success, maintain a sense of autonomy and purpose, and develop conviction about of personal ability to influence life outcomes. Moreover, an effectively functioning family can help a child consolidate a favorable personal and social identity, foster commitment to achievement, nurture a sense of responsibility, and prepare the child for assumption of adult roles in work and marriage in spite of adversity.

Table 1.
Social Status and Economic Well-being Scale Factors
(Barbarin, Mohanlal & Richter, 1996)

I. **Family Structure/Household Composition**(Score 1-10)
Ia. Marital Status of Mother
1. Never Married, not now living with a partner
2. Married but not living now with a partner(e.g. divorced, separated)
4. Widowed
7. Never Married , but now living with partner
10. Married, and currently living with partner

II. **Social Status**- (Education, Occupation - (2-18)
A. Mother's Education: What is the highest level of education successfully completed?
1. Less than Standard 3
2. Primary School: (Standard 3-4):
3. Junior Secondary(Standards 5-7).
4. Senior Secondary (Standard 8-9)
5 Matric /High School graduate/vocational training diploma
6. 1-2yr College, , Technikon
7. 3- 4 yrs of University
8. Ph.D, M.D. J.D., DDS or other doctoral degree

B. Education of Mother's Partner: What is the highest level of education successfully completed?
1. Less than Standard 3
2. Primary School: (Standard 3-4):
3. Junior Secondary(Standards 5-7).
4. Senior Secondary (Standard 8-9)
5 Matric /High School graduate/vocational training diploma
6. 1-2yr College, , Technikon
7. 3- 4 yrs of University
8. Ph.D, M.D. J.D., DDS or other doctoral degree

(Education score = the mean of Mother and Partner's educational attainment, 1-8).

Iic. Occupation of the Primary wage earner in the Household?_____

Factor III. _Housing. (Score 0-8)

A. Type of Housing Accommodation:
0. Homeless
1. Shack, Lean-to
2. Hostel,
3. room, garage

4. Apartment, cottage
5. Home shared with other family(ies).
6. A Home not shared with other families.

B. Does your home have

A Separate Kitchen	0. No	1. Yes
A Separate Bathroom	0. No	1. Yes

Factor III. Housing Amenities_(Score 0-8)

a) How many separate rooms for sleeping does your home have?
(circle one number)   0   1   2   3   4 or more.

b) What type of Toilet facilities does your home have:
0. none   1. Pit or Bucket   2. Outside Flush toilet   3. Inside Flush

c) Does your home have a Washing Machine   0. No   1. Yes

Factor IV. Consumption: (Score 0-4)

Do you or anyone in the household own a ...?

a) Refrigerator	0. No	1. Yes
b) Television	0. No	1. Yes
c) Telephone	0. No	1. Yes
d) Car	0. No	1. Yes

Table 2 .Measures
Behavioral and Emotional Functioning Items assessed at Age 4.

Anxious*	Fearful, has other specific fears(e.g. dark, dogs, insects
Immature Habits	Have habits like nailbiting, scratching, nosepicking, thumb sucking, teeth grinding
Aggressive	Aggressive with or bullying other children
Oppositional*	Difficult to manage, throws temper tantrums, disobedient
Eating difficulty*	Eats poorly and has poor appetite
Irritable/Depressed*	Cries, whines, moans and seems unhappy or complains of aches and
Daydreams	Daydreams; Gets lost in his/her own thoughts
Social skill*	Spends a lot of time alone; does not get on well with other children
Speech Difficulty	Speaks badly, immaturely for his/her age
Stutter	Stutters in normal conversation
Motor control*	Knocks things over; seems clumsy; walks into things and trips frequently

Table 3.
Mean Safety ratings, number of households, household density(mean number of occupants), death and injuries due to political violence recorded for the period 1990-1994 by Community(suburb).

SUBURB	SAFETY RATINGS	HOUSE-HOLDS	HOUSE DENSITY	DEATHS 1990-94	INJURIES 1990-94
EMDENI	1.25	4 290	6.64	9	9
ZOLA	1.50	5 597	7.54	10	6
JOUBERT PARK	1.50	NA	NA	9	5
MOLETSANE	1.75	2 140	8.17	11	9
JABULANI	2.00	2 367	7.30	170	554
ZONDI	2.00	1 809	10.39	35	15
JOHANNESBURG	2.00	NA	NA	106	439
MAPETLA	2.25	3 090	7.16	3	7
MEADOWLANDS	2.25		.	183	176
CHICKEN FARM	2.25	1 346	3.90	27	18
CORONATNVILLE	2.25	NA	NA	0	0
MAPETLA	2.50	3 090	7.16	3	7
MOLAPO	2.50	2 005	5.48	0	5
BOSMONT	2.50	NA	NA	0	1
DIEPKLOOF	2.75	13 238	7.80	155	564
DLAMINI	2.75	2 445	7.11	113	55
NALEDI	2.75	7 002	6.53	9	16
NEWLANDS	2.75	NA	NA	4	0
EASTERN	3.00	NA	NA	0	0
JABAVU	3.00	.	.	0	0
KLIPTOWN	3.00	1 970	NA	5	37
MOFOLO	3.00	6 369	7.02	11	18
PHIRI	3.00	2 154	8.22	3	2
SENAOANE	3.00	NA	NA	0	0
NOORGESIG	3.00	NA	NA	0	4

WESTBURY	3.00	NA	NA	1	10
BERTRAMS	3.00	NA	NA		0
MAYFAIR	3.00	NA	NA	4	9
ORANGE FARM	3.00	NA	NA	3	7
CHIAWELO	3.25	6396	5.67	2	30
ELDORADO	3.25	NA	.	2	3
ORLANDO	3.50	4 486	7.03	32	19
KLIPSPRUIT	3.50	1 970	7.38	27	134
MOROKA	3.50	3 404	6.98	3	5
SOWETO	3.50	NA	.	248	692
MALVERN	3.50	NA	NA	0	0
BELGRAVIA	3.50	NA	NA	2	4
LENASIA	3.75	NA	NA	3	15
PROTEA	3.75	4 471	6.79	8	258
BELLEVUE	3.75	NA	NA	0	0
DUBE	4.00	2 375	7.46	73	62
TLADI	4.00	NA	NA	0	0
BELLAVISTA	4.00	NA	NA	20	278

Table 4.
Means, standard deviations and analysis of variance for personal (direct) impact and and community(indirect) experience of violence 1990-1994.

Safety Rating Group	Cases	Personal Experience of Violence	Community Violence	F-Value, Personal
Most Dangerous/ Least Safe Area	141	.355 (.55)	146.45 (283)	$F(4)= 6.6$, $p \leq .000$
Somewhat Dangerous	198	.222 (.48)	337.33 (391)	
Both Safe and Dangerous	583	.367 (.58)	121.26 (154)	F-Value Community
Somewhat Safe/Secure	215	.507 (.59)	41.68 (18)	$F(4)= 20.47$, $p \leq .000$
Most Safe and Secure Area	92	.380 (.59)	91.80 (120)	
Total Sample	1229	.368 (.57)	142.83 (233)	

Table 6
Multiple Regression Analyses in which IMMATURITY at Age 4 is the Dependent Variable and Social and Economic statu variables are the predictors

Multiple R   .12718
R Square   .01617
Adjusted R Square   .00894
Standard Error   .50902

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	5	2.89663	.57933
Residual	680	176.18937	.25910

F =   2.23590   Signif F =   .0492

---------------- Variables in the Equation --------------

Variable	B	SE B	Beta	T	Sig T
MOMEDUC	.013675	.015578	.035588	.878	.3803
PARTNER	-.007523	.011340	-.026447	-.663	.5073
AMENITY	**-.043533**	**.020342**	**-.089144**	**-2.140**	**.0327**
HOUSING	**.026182**	**.012636**	**.084670**	**2.072**	**.0386**
CONSUMPT	-.004810	.021378	-.009770	-.225	.8221
(Constant)	.191662	.136215		1.407	.1599

Table 5. Mutiple Regression Analyses in which Behavioral Self-Regulation is the independent variable and social status, economic status, and community violence are the predictors.

EQUATION 1-- PREDICTORS: VIOLENCE

Multiple R	.07974
R Square	.00636
Adjusted R Square	.00351
Standard Error	.78170

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	6	8.17726	1.36288
Residual	2091	1277.71025	.61105

F = 2.23038   Signif F = .0377

--------- Variables in the Equation ----------

Variable	Beta	T	Sig T
SAFETY RATING	-.010959	-.464	.6428
VIOLENCE91	**-.067534**	**-1.957**	**.0505**
VIOLENCE93	.006456	.279	.7805
VIOLENCE90	-.003783	-.130	.8964
VIOLENCE94	.028090	.805	.4207
VIOLENCE92	**.097364**	**2.535**	**.0113**

EQUATION 2. PREDICTORS: SOCIAL AND ECONOMIC STATUS

Multiple R	.13044
R Square	.01701
Adjusted R Square	.00979
Standard Error	.94649

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	5	10.54362	2.10872
Residual	680	609.17066	.89584

F = 2.35391   Signif F = .0392

------- Variables in the Equation -------------

Variable	Beta	T	Sig T
MOMEDUC	-.022890	-.565	.5724
PARTNER	**-.094374**	**-2.368**	**.0182**
AMENITY	-.072161	-1.733	.0835
HOUSING	-.045713	-1.119	.2635
CONSUMPT	.079263	1.826	.0683

Reference List

Barbarin, O. and Soler, R. (1993,) Behavioral, Emotional and Academic Adjustment in a National Probability Sample of African American Children: Effects of Age, Gender and Family Structure. *Journal of Black Psychology, 19*(4) , 423-446

Burman, Sandra and Reynolds, Pamela (1986) *Growing Up in a Divided Society: The contexts of Childhood in South Africa.* Evanston, Il: Northwestern University Press..

Dawes, Andrew and Donald, David (1994) Childhood and Adversity: *Psychological Perspectives from South African Research.* Capetown: David Phillip Publishers

Dryfoos, J. G. (1990). Adolescents at Risk: Prevalence and Prevention. N.Y.: Oxford University Press.

Duncan, G., Brooks-Gunn, K. & Klebanov, P.K.(1994). Economic Deprivation and Early Childhood Develoopment. Child Development, 65(2), 296-318

Dyson, J.L.(1990). The effect of family violence on children's academic performance and behavior. Journal of the National Medical Association, 82 17-22

Felner, R. D. (1984). Vulnerability in childhood: A preventive framework for understanding children's efforts to cope with life stress and transitions. In M. C. Roberts & L. Peterson (Eds.), Prevention of Problems in Childhood: Psychological Research and Applications. New York: John Wiley & Sons.

Fonn, DeBeer, Kgamphe, McIntrye, Cameron, Phadyachee, Wagstaff, & Zitha, (1991).

McLoyd, V. (1990). The Impact of Economic Hardship on Black Families and Children: Psychological Distress, Parenting and Socioemotional Development. Child Development, 61, 311-346

Ramphele, M.(1993). Uprooting Poverty. Capetown: Davids

Robertson, (1994)

Straker, G. (1992) Faces in the Revolution

Werner, E. & Smith, R. (1989). Vulnerable but Invincible: A longitudinal Study of Resilient Children and Youth. New York: Adams, Bannister and Cox.