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Ecological Approach in Practice: A Case Study of the Ounce of Prevention Fund

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In an attempt to suggest ecologically sensitive program models which are developmentally responsive to the needs of adolescent parents and their children, this paper reviews existing research to identify the critical ecologies in their lives, evaluates existing program models for their ecological sensitivity, and presents a case study of the ecological approach in practice. Drawing from Bronfenbrenner's ecological perspective and typology of systems, the paper identifies family, partner, school, work, health care, neighborhood, poverty, and ethnicity as critical ecological systems in the lives of the adolescent and her child. Many existing program models do not systematically address all of these critical systems. The Ounce of Prevention Fund's multiple layers of partnership model is presented as a realistic and effective approach to providing services that address the critical system needs of adolescent parents and their children.

Since the 1970s, the epidemic of adolescent pregnancy in the United States has grown to tremendous proportions at a high public cost. By age 20, 18% of women in the U.S. will have given birth to one or more children (Henshaw & Van Vort, 1989). In 1985, adolescent childbearing cost the United States government 16.85 billion dollars (Burt, 1986) and has been connected with higher rates of school-drop out, subsequent pregnancy and unemployment for these mothers (Astone, 1993; Hayes, 1987; Furstenberg, Brooks-Gunn, & Morgan, 1987). While many different types of programs exist to prevent adolescent pregnancy and to intervene in the usually negative life course of adolescent parents, programs

have had varying degrees of success. It is the contention of this article that programs will have a better chance at having a long-term positive impact if they address the important critical systems in the ecology of the adolescent, ranging from her individual development to the social and cultural environment in which she lives.

Bronfenbrenner (1979) provides an ecological theoretical framework in which to locate the influence of various systems on people's lives. The ecological framework has been tested in different contexts ranging from child development and adolescent childbearing to domestic violence (Cochran, 1988; Dutton, 1984; Olds, 1990; Pence, 1988). Lamb (1988) uses an ecological approach to examine the social context in which adolescent pregnancy and parenting occurs. The social context included several critical systems: the adolescents' parents and fathers of children who are potential sources of social support; school and work systems; the prevailing social and political attitudes about adolescent childbearing; and the impact of these systems on the adolescent's development, including her educational, occupational, and relationship outcomes.

Olds (1990) found that home visiting programs which use an ecological approach had better birth outcomes and improved the long-term functioning of environmentally at-risk mothers and children than programs which did not address all the critical systems. The ecologically sensitive programs specified and addressed the appropriate causal factors, such as the lack of health care, parenting education, and social support, that resulted in poor birth and developmental outcomes for mother and child. On the other hand, the less effective programs provided primarily social support on the assumption that psychosocial stress was the causal factor.

There are a plethora of programs that have been developed to address the needs of the adolescent parent and her child, but few explicitly use an ecological approach wherein the relevant systems that impact and are impacted by the adolescent are considered. No research has looked at how programs incorporate, even if implicitly, the important critical systems. This is a pivotal issue because ecologically sensitive programs which holistically focus on as many relevant critical systems as possible have

been found to be more effective and cost-efficient in the long-run than those programs which do not (Pence, 1988). This paper will, therefore, examine existing research to take a broad look at the critical ecologies of adolescents and assess the ecological sensitivities of typical program models that serve low-income adolescent mothers. Finally, using the case study of the Ounce of Prevention Fund in Chicago, Illinois (The Ounce), the paper will illustrate the possible models for implementing the ecological approach. This review will highlight critical areas for program design and implementation, if programs are to generate enduring impacts on low-income adolescent parents' life course.

Theoretical Perspective

Bronfenbrenner (1979) provides a contextual schema to articulate the diverse ecologies in the life of an individual. His schema includes four systems; the microsystem, the mesosystem, the exosystem, and the macrosystem. The microsystem includes the most primary and immediate interpersonal relationships between two or more persons. These involve the relationship between mother and child, between close friends, and between the individual and her partner. The mesosystem encompasses those direct relationships with secondary and distant systems "outside" of the immediate realm of the family, friends, and partners and those which directly affect the individual. School and work represent mesosystem influences for the adolescent. The exosystem consists of secondary systems that do not directly impact, but still influence, individuals. For example, parents' work situation indirectly affects children through the parents' work related behavior. And finally, the macrosystems are those socio-cultural or subcultural systems which are shared by people living in that environment, such as race/ethnic background and economic opportunities in the community.

Each system is related to the others in a nested fashion. The nested systems model "places the microsystems of immediate experience within a mesosystem of two or more microsystems, (which) is in turn embedded in the exosystem of non-immediate social contact; each of these system levels is, in turn, nested within a macrosystem of socio-cultural mores, values, and laws" (Pence,

1988; p. xxiii). One implication of the nested relationships among systems is that the effect of more distant systems can also be experienced at the more immediate levels. For example, while ethnicity is a macrosystem factor, it can also directly impact individuals through the cultural norms and options available to members of an ethnic group. These systems subsequently impact the developmental processes of the individual. "Direction and degree of psychological growth are governed by the extent to which opportunities to enter settings conducive to development in various domains are open or closed to the developing person" (Bronfenbrenner, 1979; p.288). These settings can developmentally impact everything from identity formation to an adolescent's ability to integrate formal and informal supports.

One major criteria for the selection of critical elements is whether the elements "have meaning for the person" (Bronfenbrenner, 1979; p. 22) as either positive or negative influences in their lives. Consequently, "the principle helping strategies for ecological practitioners are to identify and build strengths of individuals and families, empowering them to take charge of their situation and to change aspects of environments that hinder the development of healthy families" (Wharf,1988; p.195).

Critical Ecologies of the Adolescent Parent

To set the context for assessing the ecological sensitivity of program models, it is necessary to identify briefly the critical ecologies of adolescent mothers. We will first focus on the adolescent mother and her child and examine the multiple contexts, both immediate and distant, in which their lives are embedded. Specifically, we will examine the family, partner, school, work, health care, neighborhood, ethnicity, and poverty systems.

The Adolescent Microsystem

Programs which address the critical systems of the adolescent must consider the developmental impact of childrearing at an early age. Parenting would not be so traumatic except for the fact that it interrupts the adolescent's development (Brooks-Gunn, Petersen, & Eichorn, 1985). Motherhood before the age of 18 makes adolescent mothers feel overburdened (Freeman and

Rickels, 1993); affects their personal efficacy (McLaughlin & Micklin, 1983); renders them unable to maintain intimate relationships as evidenced by their high divorce rates (Teti & Lamb, 1989); lowers their self-esteem, and impairs their academic and non-academic school performance (Simmons, Burgeson, Carlton-Ford, & Blyth, 1987). At a minimum, ecologically sensitive programs support the adolescent parent in dealing with these potential changes.

Parenting by adolescents impacts their children as well, especially those born into low-income families. Economically disadvantaged children of adolescent parents are more likely to have difficulties in their school, in social relationships, and in their emotional well-being (Felner, 1984; Furstenberg et al., 1987). Providing social support for mothers can help improve mother/child attachment and increase the possibility of the infants being more secure (Crockenberg, 1981). These findings challenge programs to assist adolescents in maintaining ecologies that will support their own and their children's developmental needs.

The Family Microsystem

The adolescent's family of origin is usually the most important microsystem in her life and greatly affects her development. A majority, especially younger and African American adolescents, tend to live with immediate family members (Fernandez, Ruch-Ross, & Montague, 1993; Mott & Maxwell, 1981). Even adolescents who are married or who report they are close to their partners usually turn to their families of origin before consulting their significant other (Lamb, 1988).

Adolescent mothers who live with their families are less likely to be on welfare, to have dropped out of school, and to be unemployed (Marsiglio, 1987). Parents' expectation that their daughters will graduate from high school is also an important determinant of whether or not she will finish school (Williams, 1991). Not only do families provide emotional and financial support, but they fulfill more practical needs like childcare, and thereby remove a major obstacle to completing school and/or becoming employed (Crockenberg, 1981). Strong ethnic/cultural family networks can also ameliorate the conflict between acculturation and personal identity which can impede the

developmental process. "When acculturation is made possible by openness of the dominant culture and complementarity with minority culture, children tend to thrive-literally getting the best of both worlds" (Garbarino & Kostelny, 1992; p. 193).

Children of adolescent mothers who live with their mothers and grandmothers have better behavioral and educational outcomes than those who live apart from grandmothers. This finding applies irrespective of whether the adolescent mothers' husbands or boyfriends are present in the home (Furstenberg, et al., 1987). "As individuals, single parents may be excellent caregivers. But as microsystems, their households may be insufficient, unless they are augmented from the outside to produce a fuller, richer range of roles, activities, and relationships for the child to use in his or her development" (Garbarino & Abramowitz, 1992; p.39). As Cochran (1988) argues, if programs can help protect the family system, then the family will be able to adequately provide for the needs of its members.

The Partner Or Husband Microsystem

Contrary to stereotypes, many adolescent mothers maintain a relationship with the fathers of their children (Fernandez et al., 1993; Elster & Lamb, 1986), even if the relationships are not long-term. Yet an adolescent's continued involvement with her child's father could have long-term negative outcomes for mother and child. When adolescents are involved with their children's fathers they tend to exclude other critical microsystems, such as family, friends, role models, and other peer groups, from their lives (Rickel, 1989). Some of the negative consequences of the fathers' involvement could stem from the difficulties the fathers themselves face in school, at work, and in other areas of their lives (Marsiglio, 1987).

Whether the child's father is involved with the adolescent mother or not (either in or outside of marriage), few programs focus directly on the relationship between the adolescent mother and her partner, let alone directly providing services to the father of her child (Elster & Lamb, 1986). Ecologically based programs will assist in strengthening the relationship among the adolescent mother, her child, and the child's father. Such a program component may provide the best developmental outcome for mother and child (Parke, Power & Fisher, 1980).

School, Work, and Health Care Mesosystems

Analyses of the mesosystem ecology of the adolescent generally focus on the interrelations between the secondary "outside" systems (school, work, health care, and other service agencies) and the microsystem of the adolescent. School and work impact the adolescent at a mesosystems level while they impact her child indirectly at an exosystem level, and later as a mesosystem when the child is ready for school and work. Although these systems are important in themselves, it is when these mesosystems and microsystems begin to work together that the result is most beneficial for mother and child (Garbarino & Abramowitz, 1992).

An adolescent mother's success in school spills over into her other microsystem relationships. Staying in school not only gets her a high school diploma, it also allows her the opportunity to maintain contact with peers and to continue her own development (McLaughlin, Manninen, & Wings, 1988). When a single mother has a post-high school education, her child is also likely to perform better in school (Cochran, 1988). Further, those pregnant or parenting adolescents who are working are more likely to be in low paying jobs, and to be less satisfied with their jobs than same age females with no children (Card & Wise, 1978). Yet, not being in school or not working significantly increases chances of a subsequent pregnancy (Ruch-Ross, Jones, & Musick, 1992).

Being pregnant requires that adolescents take steps to ensure their health and that of their babies. Improper nutrition, lack of knowledge about sources of prenatal care, transportation and financial difficulties, and depression are some health related risks adolescents face (Harvey and Faber, 1993). Since many adolescents are still in school or working at low-paying jobs, AFDC and/or WIC may be the only source of health care and food. Some have to set up their own households to receive AFDC benefits (Gold and Kenney, 1985). It is important that programs find ways to help adolescents negotiate these mesosystems.

The Neighborhood Exosystem

At another level, the neighborhood or communities in which adolescent parents live can critically impact them at many different levels. Garbarino & Abramowitz (1992) summarize the ecological salience of neighborhoods: "A strong and healthy neighborhood enhances development by providing the kind of

multiple connections and multiple situations for children that permit them to make the best use of their intellectual and social resources" (p. 49). Living in a neighborhood with few professional or managerial workers is associated with higher rates of adolescent non-marital births and early school leaving (Brooks-Gunn, Duncan, Katoklebanov, & Sealand, 1993). Most adolescents who are pregnant and decide to keep their child live in neighborhoods with significant numbers of low-income, single-parent households (Williams, 1991). Being surrounded by single-parent homes and adolescent parents, many expect that they will have a child before marrying (Freeman & Rickels, 1993). Crane (1991) calls this phenomenon the epidemic impact of ghettos and neighborhoods on dropping out of school and teenage childbearing.

Further, adolescent mothers tend to be socially isolated throughout their lives, with few belonging to any community or religious organizations (Williams, 1991). Social isolation has also been found to reduce the length of participation of high-risk mothers in intervention programs (Powell, 1984). Hence, ecologically sensitive programs will have to be cognizant of neighborhood or community effects on adolescent parenting.

Macrosystem Impacts

Ethnicity and poverty are two macrosystem factors that are critical in the lives of many adolescent parents. The nested nature of the relationships between the microsystems and these distant systems suggest that the impact of ethnicity and poverty will be seen at all system levels (Bronfenbrenner, 1979). Ethnic and social class differences are found in the development of the adolescent mother and child, in her relationships with her parents, partner, school and work environments, and in the impact of her neighborhood.

For women from economically and educationally disadvantaged backgrounds, adolescent childbearing has been found to represent an alternative pathway to adulthood (Upchurch, 1993). Yet, poverty is a potential cause for developmental risk (Garbarino & Abramowitz, 1992). Brooks-Gunn, et al. (1993) found that the presence of affluent neighbors improves developmental outcomes for children of all socio-economic statuses. "It is clear that the best hope for the teenage mother, baby and any future

children is a setting in which there are rich developmental possibilities for both mother and infant" (Fisher, 1984; p.62).

Ethnic differences are also found in the relationship between the adolescent and her diverse ecologies. For example, a Hispanic adolescent mother is more likely than a black or white adolescent to leave her family and get married or to live with her child's father at the time of conception. The Hispanic mother is also the least likely to finish school (Salguero, 1984). In contrast, black mothers are more likely to live with and to receive financial, emotional, and childcare support from their families than whites or Hispanics. The continued familial support available to black adolescents may explain why they are more likely to finish high school, even if they are more likely than whites or Hispanics to have a child while in high school (Freeman & Rickels, 1993).

The contradictory impact of family involvement for different adolescents can be reconciled by examining the ethnic differences in the implications of having a child for the adolescents' sense of self. Black adolescents found "motherhood (was) self-affirming", but not at the exclusion of school and work (Williams, 1991). Williams (1991) also found pregnancy to bring a black adolescent closer to her mother. Mothers are often reported to be role models in the decision of black adolescents not to terminate their pregnancies. In contrast, for many Hispanic adolescents, having a child means gaining equality with, and independence from, their mothers; as a result, a pregnancy tends to isolate a Hispanic adolescent from familial supports that could potentially help her in finishing school (Salguero, 1984).

There are also ethnic differences in adolescent mothers' relationships with their partners. Two-thirds of white teens and 97% of black adolescents got pregnant while not married (Furstenberg et al., 1987). White adolescents are more likely than blacks to marry during pregnancy; blacks are more likely than whites to separate if they do marry (Billy, Landale, & McLaughlin, 1986; Teti & Lamb, 1989).

Thus, the relevance of poverty and ethnicity must be addressed at multiple system levels. Yet, while much attention has been paid to ethnicity and poverty, research has failed, for the most part, to examine other critical societal influences, such as values, political climate, and public policy, on the negative life

courses of many adolescent parents. Rhode & Lawson (1993) believe that "(i)nsufficient attention has focused on the societal level, in structures that offer female adolescents 'too little too late': too little reason to stay in school, too little assistance in birth control, too little opportunity for childcare, health services, vocational training or decent jobs, and too little understanding of the responsibilities of single parenthood" (p.302). The United States does not provide sex education, contraceptive services, and childcare at the same level as other developed countries which also have lower levels of adolescent pregnancy and childbearing (Jones, Forrest, Goldman, Henshaw, Lincoln, Rosoff, Westoff, & Wuff, 1985).

Program Models

Given the importance of these systems in understanding the causes and impact of adolescent pregnancy, the next step is to examine some common program models and to assess their ecological sensitivity. Specifically, four of the most frequently used program models—home, school, health care, and other service agency based programs—will be discussed.

Microsystem-Focused Program Models:

A Case Management Approach Through Home Visiting

Through outreach and case management, home visitors use a personalized approach to help adolescents negotiate the complicated life ecologies which may jeopardize their positive development and life outcomes (Powell, 1989). The home visitor often helps the whole family adjust to the addition of a new family member, increasing the possibility that the adolescent mother can remain at her parental home, if that is deemed to be a more stable environment than being on their own. Home visitors can also help the adolescent work out issues with her child's father (Olds, 1990), and assist the adolescent in negotiating her relationship with "outside" agencies that provide childcare, job counseling, mentoring and family counseling (Dryfoos, 1988). In ecological terminology, the home visitor acts as a direct liaison between the adolescent and both the immediate microsystems and the secondary systems in her life.

Mesosystem-Focused Programs: Agency Based

Addressing all the special needs of adolescent mothers in the school, work, health care, and other service agency systems may be beyond the scope of the home visitor. Hence, there is need for mesosystem based programs that the adolescent can access either directly or with the help of a home visitor.

School-Based Programs. These programs address the unique needs of adolescent mother-students and help them negotiate the school mesosystem along with their parental roles. Successful school-based programs generally provide counseling, medical assistance, parenting classes and in some cases, child care (Weatherley, Perlman, Levine, & Klerman, 1986). Powell (1989) suggests that connections between school and home are even more important for non-Anglo and poor children, particularly when there are discrepancies in cultural values and expectations between the home and school.

According to Bronfenbrenner (1979), the mesosystem relationship, such as that between the school and home, can be strengthened if there is goal compatibility, supportive linkages, staff overlap, and open, face-to-face communication between the two settings. In short, supportive school programs can fulfill two purposes: one, they help the adolescent continue her development; and two, they help her negotiate the meso- and exosystems and consequently help her to integrate her student and parent roles successfully.

Health Care-Based Programs. Hospital or health care-based systems usually are the first mesosystems that adolescents encounter when they discover they are pregnant. Although the primary focus of these programs is on microsystem-level outcomes (preventing low birth weight babies, premature births and infant mortality, delaying subsequent pregnancies, etc.), their relationship with the adolescent and her child often takes on a mesosystem twist. For example, helping the adolescent mother negotiate her relationships with obstetricians and gynecologists becomes an important part of these programs (Brooks-Gunn, McCormick & Heagarty, 1988).

Independent health programs providing services in partnership with the school system is an example of how the health needs

of adolescents can most effectively be addressed at a mesosystem level. For many poor adolescents, school-based (located in schools) or school-linked (located near schools) clinics are the only source of much needed health care (Kirby, Waszak, & Ziegler, 1991).

Other Service Programs. Another context in which mesosystem type services are provided include social service, mental health, and public health agencies. An example is the REAP (Resources and Education for Adolescent Parents) program which operates out of the Department of Social Services in Fresno, California, and provides income assistance, one-on-one support through case-workers, and referrals to other agencies (Weatherley, Perlman, Levine, & Klerman, 1985). Community satellite health clinics, administered by Harlem Hospital, provide outreach services, transportation allowance, and information on child-rearing and health (Brooks-Gunn, et al., 1988).

Summary. The programs examined thus far address different critical systems in the lives of adolescent parents. The home visiting program seems best suited to the microsystems level, because it offers a personal approach and immediate access and knowledge to all family members involved. However, the home visitor's role in helping the adolescent mother deal with her mesosystem relationships are limited. School-based programs help the adolescent negotiate and accomplish her educational and occupational goals. But even they may have little or no chance to mediate difficult situations in the adolescent's family or personal life which may adversely affect her ability to accomplish her mesosystem goals. Similarly, health-based programs generally do little to provide assistance in negotiating changes in the adolescent's family, school, work, and neighborhood. Besides, the program models reviewed above seldom deal with the exosystems and macrosystems of the adolescents, such as poverty, lack of quality child care, of affordable housing, and of transportation, issues that ecologically sensitive programs serving low-income pregnant adolescents must be prepared to address.

The Ounce of Prevention Fund Programs: Multiple Layers of Partnerships

While it may not be realistic or feasible for one program to directly provide all the services an adolescent needs, an option

may be a partnership model that links a variety of programs, each of which concentrates on different critical systems. The Ounce of Prevention Fund of Chicago, Illinois, and its programs for adolescents, offer a model for such partnerships. The Ounce enters into partnerships with various agencies to address, in an ecologically sensitive manner, the immediate and distant critical systems in the lives of low-income children, adolescents, and their families. Ounce partnerships are a consortium of services that program participants can tap into as they negotiate the critical systems that impact their lives. These partnerships provide an excellent case study in implementing the ecological approach.¹

The Ounce program philosophy recognizes that no single agency or program can deal effectively with the complex problems faced by children and their families. It is also recognized that different aspects of an individual's successes and challenges (be they in relationships, education, employment, parenting, or child rearing) are interconnected; consequently, attempts to assist the individual can be more effective if programs are complementary. Also, in an era of diminished resources, collaboration among agencies is an imperative in order to pool and maximize existing resources and to eliminate duplication. In short, Ounce partnerships attempt to make programs more responsive to the complex problems that individuals and families face.

Many Ounce sponsored programs provide direct services at the micro-system level to adolescents, children, and families. Further, in the process of providing direct services, Ounce programs engage in and facilitate several layers of partnerships. Some of the significant layers are direct and indirect liaisons with other agencies, partnerships through expanded scope of services, and collaboration among programs.

Microsystem Services

The Parents Too Soon (PTS) programs sponsored by the Ounce provide direct intervention services, such as home visits, parent support groups, developmental assessments for children, and child care, which strengthen the microsystems of parent-child and family relationships. They also provide prevention services which include promoting school success, building self-esteem and social skills, delaying sexual activity, and discouraging other high-risk behaviors. Funded through the Illinois Department of Children

and Family Services (DCFS), the primary program goals are to deter teen pregnancy and to support adolescent parents. The Ounce serves as fiscal agent and offers training and technical assistance to 37 agencies that provide PTS services in diverse urban and rural populations across the state.

Direct Liaison with Mesosystems

Through services such as GED training, access to prenatal care, and after school enrichment opportunities, PTS programs directly link adolescents with the critical mesosystems of schools, employment, and health care agencies. Further, by providing training and technical assistance to community agencies (a meso-system), the Ounce supports the partnerships between agencies and their program participants.

Indirect Liaison with Exosystems and Macrosystems

The networks between the Ounce, exosystems (such as the policymakers), and macrosystems (such as the communities) that indirectly impact children, adolescents, and their families represent yet another layer of partnership. The KidsPEPP (Kids Public Education and Policy Project) division of the Ounce concentrates on advocacy and reform of policies that impact participants as well as ensuring adequate funding for programs. The Ounce conducts its own public education efforts and forms coalitions with other children's advocates. The Problem Resolution Office (PRO) at the Ounce, in partnership with the Illinois Governor's Office, attempts to make government (exosystem) more responsive to participants' needs, through the implementation of recommended administrative policy and procedural changes.

The Research and Evaluation division of the Ounce indirectly links its participants to another exosystem, the academic community. The scientific evidence accumulated on service provision and on program effectiveness enables the Ounce, directly and through the academic community, to shape policies and funding (another set of exosystems) for programs.

Further, the Ounce also serves as an indirect liaison between DCFS, an exosystem in this instance, and the community, its adolescents and their families. Operating PTS programs through

community agencies ensures that services are tailored to community needs and builds on community strengths. To ensure the effectiveness of the partnership model and to keep pace with changes in the demographics of the population in Illinois, the Ounce also conducts periodic assessments. A recently completed competitive bidding process for the delivery of PTS services resulted in building new partnerships in previously underserved areas of the state and in expanding outreach to the Latino community. "It also gave us the opportunity to strengthen the implementation of our program guidelines and ensure that program goals are met" (The Ounce of Prevention Fund 1993; p.6).

Partnerships Through Expanded Scope of Services

Yet another aspect of Ounce partnership is found in instances where Ounce programs have expanded their scope to provide services that have traditionally been the purview of other systems. For example, the Ounce, through its Toward Teen Health division, operates school-based adolescent health centers in three of Chicago's most economically depressed communities. These health clinics are often the only source of medical care for students. The after-school prevention programs (Peer Power for girls and ADAM or Awareness and Development for Adolescent Males) work towards raising self-esteem, developing social skills, promoting school achievement, and discouraging early sexual activity and other high risk behavior such as drug and alcohol use. The clinic health educators and teachers who facilitate the discussion groups and other activities enable the school system to provide individual support services to students, their families and communities that go beyond the traditional business of teaching. By addressing the social and emotional needs of students, these support services better prepare students to learn in the classroom.

Collaboration Among Programs

Another layer of partnership is found in the collaborations among Ounce programs (mesosystems), between Ounce programs and systems outside the Ounce, and among outside systems. Collaboration between the Ounce's Peer Power/ ADAM programs and school-based clinics (mesosystems) discussed above offer students continuous service beginning early in their

sixth grade and continuing on to their high school years. The Peer Power/ADAM and school-based clinic programs also offer collaboration possibilities among mesosystems outside the Ounce, such as between high schools and elementary schools in which they are located, and between schools and health care systems. Partnerships have also been established with residents in public housing developments and the Chicago Housing Authority to address problems inherent in the neighborhood system. Ultimately, the goal of such partnerships is to address "the ways in which family, friends, schools, and communities transmit the norms, values, and expectations which give different meanings to girls' developmental experiences" (Sarigiani, Camarena, & Petersen, 1993; p.139).

Effectiveness of Ounce Programs

Participation in Ounce programs has resulted in positive outcomes for adolescent mothers and their children as well as cost savings for the communities funding these programs. A one-year outcome evaluation of PTS participants during 1985–1987 found the following: compared to a comparable national sample of teenage mothers drawn from the National Longitudinal Survey of Youth (NLSY), Ounce participants were a third less likely to have had a subsequent pregnancy, were 3.4 times more likely to be enrolled in school, and were 1.5 times more likely to be employed after a year of being in the program (Ruch-Ross, et al., 1992).

These and other outcomes have also been estimated to involve significant cost savings². A one-year subsequent pregnancy rate of just 10.7% among PTS program participants was estimated to save up to \$5.1 million in one year³. Consistent contraceptive use is one reason for the relatively low subsequent pregnancy rate. Nearly three-quarters of PTS participants who had been in the program for one year had reported using birth control at last intercourse. This figure compares favorably with the 54% of Project Redirection's participants who used birth control regularly after one year in the program (Polit & Kahn, 1985). Contraceptive use figures were even lower at 45% among a comparison group of non-program adolescent parents in Project Redirection's analysis.

Further, six months after entering the PTS program, 75% of participants' children were up-to-date on immunization as opposed to only 41% of the children who were up-to-date when they entered the program. Considering that every dollar spent on childhood immunization saves the government \$10 in later medical costs, this accomplishment represents significant future cost savings.

Conclusion

It is evident from this review that designing a program to meet the multiple needs of low-income adolescent mothers is a complex task. There are many critical systems in their lives that must be considered holistically. While much still needs to be done, Ounce Programs provide an excellent case study of the ecological approach in practice. They demonstrate the possibility of simultaneously addressing many critical systems.

It is also clear from this research that most ecologically sensitive programs address the microsystem and mesosystem influences on adolescent mothers. But more systematic emphasis is needed at the exosystem and macrosystems levels, especially the chronic economic poverty which negatively influences the development of the adolescent mother and her child. Following Bronfenbrenner's ecological tradition, the common goal that unifies programs at different system levels has to be one of helping the adolescent parent build a supportive ecology that can ensure the best developmental outcomes for her and her child.

Notes

1. The 1992-93 Annual Report titled, "Partners For Change" will be the primary source of information for the case study. The Ounce's target population includes more than adolescents. Ounce programs are designed for environmentally at-risk children, adolescents, and their families, although a high proportion of the participants are adolescent parents and their children. For additional information about the history of the Ounce and its other ecologically sensitive programs, see Ounce of Prevention Fund, March 1993.
2. Data on cost savings associated with successful outcome among program participants were taken from The Ounce of Prevention Fund /Parents Too Soon Outcome Fact Sheets, June 1992.
3. The one-year subsequent rates for adolescent mothers in the National Longitudinal Survey of Youth was 14.8% (Ruch-Ross, et al., 1992).

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