



YOUTH ENGAGEMENT AND HEALTH OUTCOMES: IS THERE A LINK?

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Review of Research Literature Linking Youth Engagement and Health Outcomes

In this literature review we summarize, synthesize, and critically evaluate empirical research that has demonstrated direct connections between youth engagement and health outcomes. We limit our review to research that is quantitative in nature and has been published in peer-review research journals or books. In addition, references to theoretical work on youth engagement and previous reviews appearing in published sources are included in our synthesis of the quantitative results.

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What is Youth Engagement?

A commonly used definition of “youth engagement” has yet to emerge in the research literature. In many studies, researchers use terms such as "involvement", "participation", "community service", or "volunteering" instead of engagement. Further, in the studies reviewed below, engagement is most often measured in terms of either the frequency of involvement based on a list of pre-defined activities, or the number of activities in which an individual is involved in a given period of time (e.g., within an academic school year).

In our conceptualization, youth engagement is the meaningful participation and sustained involvement of a young person in an activity, with a focus outside of him or herself (Pancer, Rose-Krasnor & Loiselle, 2002). According to Nakamura (2001), a youth can be vitally engaged in almost any sphere of activity, including music, politics, the arts, and community work. The key features of vital engagement in an activity are as follows: the individual experiences "enjoyed absorption" in the activity that is sustained over time; the activity provides a link between the individual and the outside world; and the activity is felt to be meaningful and significant. Another key aspect of such involvements is that they are "structured" (Mahoney, Schweder & Stattin, 2002). They involve regular performance of an activity, with a specific purpose in mind, rather than being "unstructured" (e.g., "hanging out" with one's peers, watching TV).

Youth engagement can also be conceptualized as part of a larger network of youth development and “developmental assets” which researchers have begun to examine in relation to positive and negative outcomes (e.g., Leffert et al., 1998). Other work has evaluated programs designed to reduce health-compromising behaviours and/or promote positive development by focusing on risk factors, and protective factors (e.g., Catalano et al., 2002), or through linking youth with adult mentors (e.g., Sipe, 2002). In our literature review, however, we focus on research that explicitly examines some type of youth engagement in relation to health outcomes.

In what follows, we ask the question: is there a link between youth engagement and health? We consider engagement, as defined by researchers in their respective studies, as a wide range of activities, including community service and volunteering, social action, athletics and team sports, music and the arts, and youth organizations both in the school and in the community. In our review, we define "youth" as between the ages of 12 and 19 years. Consequently, we focus on studies with participants between these ages, although two studies of 11 year-olds are included in our critical commentary as examples of research designs rarely used in studies of youth.

What is Health?

In examining the link between engagement and health, we use Health Canada's definition of health, as "a capacity or resource for everyday living that enables us to pursue our goals, acquire skills and education, grow and satisfy personal aspirations" (Health Canada, 2001, p. 2).

This concept of health has been broadened over the past century, from the narrow view of health as the absence of disease to a more inclusive concept, emphasizing social and personal resources as well as physical capabilities (Health Canada, 1996, p. 1).

This means that the ways in which health or health outcomes are measured must be expanded, from looking only at physical disease, to looking at additional kinds of indicators, such as measures of mental, social and emotional health problems, as well as physical problems (Health Canada, 1996, p. 2). It also means that we must look at social and personal resources that can serve as health-protective factors as well as enhancing the capacity of individuals to pursue desired goals. What does this imply when we are looking at the health of youth? This suggests that we must look not only at indicators of physical, social and emotional problems (such as alcohol and drug use, criminal behaviour and mental well-being), but at indicators of positive physical (e.g., physical fitness), social and emotional health, such as youths' support networks, their success at school, and their participation in civic society.

In the review that follows, then, we focus not only on the links between problems and youth engagement, but also on positive health and well-being as well, and how it is associated with youth engagement. Studies reviewed below are grouped together on the basis of the type of health outcome examined in relation to youth engagement.

Youth Engagement and Alcohol Use

Eccles and Barber (1999) used data from the Michigan Study of Adolescent Life Transitions (MSALT) to examine the relationship between youth engagement and involvement in behaviours that might place their health at risk, such as alcohol and drug use. Youth in the MSALT project were followed through 8 waves of data collection, beginning when they were in the 6th grade (1983-84), and continuing into 1996-97, when most were 25 or 26 years of age. The analyses presented in the Eccles and Barber (1999) report include data from 1,259 respondents who had completed survey items about activity involvement in the Grade 10 wave of data collection (in 1988-89), and for whom outcome data were available at wave 6 (in 1990-91, when most were in Grade 12) and in wave 7, two years later (in 1992-93). Information was collected on the adolescents' involvement in a wide variety of activities while they were in the 10th grade, by presenting them with a list of 16 sports and 30 school and community clubs and organizations, and asking them to check off all activities in which they participated. An index was created to indicate the level of involvement of each student in each of five major activities: prosocial activities (e.g., volunteering and community service), performance activities (e.g., school band, drama), team sports (e.g., basketball team), school involvement (e.g., student government), and academic clubs (e.g., math club). Health risk behaviours were assessed in the 10th and 12th grades by asking students to indicate on a scale from 1 (none) to 7 (21 or more times) how frequently over the previous 6 months they had engaged in a number of risky behaviours, including drinking alcohol and getting drunk.

Results showed that individuals involved in pro-social activities, such as volunteer work, when they were in Grade 10 drank alcohol and got drunk at much lower rates than did those who did not engage in these kinds of activities. When these behaviours were measured two years later, in Grade 12, the relationship between involvement in pro-social activities and drinking remained, even after controlling for gender, mother's educational level, intelligence, and even 10th grade drinking. This is consistent with a possible causal relationship between pro-social activities and a reduction in drinking, in that pro-social activity in Grade 10 predicted changes in drinking behaviour from Grade 10 to Grade 12. Similar effects were obtained for involvement in the performing arts, with adolescents who were involved in these kinds of activities in Grade 10 showing lower levels of alcohol consumption in Grade 12. Participation in school involvement activities and academic clubs in Grade 10 was not related to drinking in Grade 12. Team sport involvement assessed in Grade 10, on the other hand, was related to increases in alcohol consumption in Grade 12.

Another study using a different sample from the MSALT data (Barber, Eccles & Stone, 2001) also examined the relationship between extracurricular involvements and alcohol consumption. This study included approximately 900 of the MSALT participants, for whom data were available during the 10th grade (wave 5), 12th grade (wave 6), and two (wave 7) and six (wave 8) years after high school. Engagement or involvement was measured in the 10th grade, as described above; adolescents were asked to check activities in which they participated from a list provided to them. The activities were grouped into four categories: pro-social activities, team sports, performing arts, and school involvement. Information on drinking was collected at waves 5, 6, 7 and 8 for the previous six months, on a scale ranging from 1=none to 7=21 or more times. The results indicated that those who had participated in pro-social activities in Grade 10 drank significantly less frequently than those who had not been involved in these kinds of activities across all time periods. Indeed, participation in prosocial activities in the 10th grade predicted lower levels of alcohol use up to eight years later, six years after the individuals had completed high school. Involvement in other kinds of activities – sports, the performing arts and school, showed a different relationship with drinking: sports team participation was associated with higher levels of drinking, as was participation in the performing arts.

Vicary, Smith, Caldwell & Swisher (1998) utilized data collected as part of the Rural Adolescent Development Study (RAD) to assess the relationship between involvement in positive leisure activities and use of alcohol. The RAD study involved giving annual surveys to students, originally in grades 7, 8 or 9, from a rural school in northeastern Appalachia. This area was populated by families with low-to middle-income levels, with two-thirds of the adult population having a high school education or less. Involvement in three kinds of activities was assessed in the survey: Personal Development Activities (e.g., church attendance, volunteer activities); Social Activities (e.g., attending parties, hanging out with friends); and School-Related Activities (e.g., after-school extracurricular activities, school sports). Alcohol use was assessed by means of a subscale of the Primary Prevention Awareness, Attitudes and Use Scale (PPAAUS; Swisher, Shute & Bibeau, 1984), which asked respondents to indicate the frequency with which they consumed alcohol, on a 6-point scale ("never" (1) to "many times daily" (6)). The data from 460 respondents who had participated for at least two sequential years in the study, and who had no history of drinking as assessed at time 1 were included in the data analyses. The results indicated that decreases in sports, hobbies and crafts, and church involvement preceded increased alcohol use for girls, but not for boys.

Komro et al. (1996) assessed the effects of adolescent participation in the planning and promotion of alcohol-free social activities on drinking. This research was part of Project Northland, a program based in northeastern Minnesota, which was designed to prevent or reduce alcohol abuse among young adolescents using a "multi-level community wide" approach (Komro et al, 1996, p. 328). The project has been implemented in 24 school districts in the state since 1991. One component of the project is the "peer participation program", in which seventh grade students in the intervention schools were recruited to participate in the planning and promotion of alcohol-free activities, such as dances, ski trips and movie nights, for their fellow students. Students who were involved in the planning of the program activities (planners) were compared with students who attended the peer-planned events, but were not involved in planning them (attenders), and students who neither planned nor attended any of the events (non-participants), with regard to their use of alcohol. All students involved in the study completed self-report surveys at three points in time; at the beginning and end of Grade 6 (fall of 1991 and spring of 1992), before the program began, and after the program had been implemented, at the end of Grade 7 (spring 1993). In addition to items assessing demographic and background characteristics contained in the earlier surveys, all surveys included questions assessing alcohol use ("On how many occasions have you had alcoholic beverages to drink (during the past 12 months, 30 days, and 7 days?").

The study cohort consisted of 1,028 students, 166 of them who were "planners", 335 who were "attenders" and 527 who were "non-participants". Analysis of covariance was used to compare the drinking levels of the three groups as assessed on the Grade 7 survey, with baseline drinking levels and background variables from the Grade 6 surveys as covariates. These analyses showed a significant difference in alcohol consumption among the three groups. The planners consumed significantly less alcohol than did the attenders and non-participants. Moreover, the greatest impact of the peer participation program was on planners who had reported alcohol use in the baseline surveys administered in Grade 6.

Youth Engagement and Drug Use

Youniss, Yates and Su (1997) used data from an ongoing survey of high school seniors conducted annually by the Institute for Social Research at the University of Michigan to look at the relationship between student activities and drug use. The survey is administered each spring in about 125 public and private high schools representing a cross section of high schools across the United States. Included in the survey were measures of students' school involvements (e.g., working on school publications), creative activities (e.g., creative writing), sports (e.g., playing sports either inside or outside school), and partying (e.g., going to bars, parties). They grouped students into five orientations based on their level of involvement in each of these activities: (1) a school orientation; (2) a party orientation; (3) an all-around orientation (students who were high in all four kinds of activities); (4) an average orientation (students who were average on all activities); and (5) a disengaged orientation (students who were low in all activities). Also measured on the

survey was students' involvement in community service and marijuana use. The results indicated that the more students were involved in community service, the less frequently they used marijuana. This relationship between community service involvement and marijuana use was found for all the orientations except for the "all-around" orientation.

The relationship between marijuana use and community service involvement was confirmed in another study by Youniss, McLellan, Su and Yates (1999), using a different sample of adolescents from the annual survey conducted by the Institute for Social Research. For this study, the authors utilized data collected from nearly 17,000 high school seniors between 1988 and 1993. Participation in community service activities was assessed by a survey item asking respondents to indicate the extent to which they had participated in community service or civic affairs in the previous year. Once again, participation was significantly related to the frequency with which the students reported having used marijuana in the previous 12 months. The more frequent their participation in community service or civic affairs, the less frequently they used marijuana.

The relationship between community service and marijuana use was also found in the studies using data from the Michigan Study of Adolescent Life Transitions (Eccles & Barber, 1999; Barber, Eccles and Stone, 2001). Both these investigations found that individuals who reported participating in community service and volunteer activities when they were in Grade 10 were less likely to use marijuana both in their later teenage years, and into young adulthood. In addition to looking at marijuana use, the Eccles and Barber (1999) study assessed use of hard drugs, using the same kind of scale that they had used in assessing marijuana use (i.e., frequency of use in the previous six months, on a 7 point scale ranging from "none" (1) to "21 or more times" (7)). They found that individuals who participated in pro-social activities such as volunteering in Grade 10 reported using hard drugs less frequently when assessed two years later, in Grade 12.

Similarly, Jenkins (1996) found that extracurricular involvement was significantly and negatively correlated with high school students' use of both gateway (cigarettes, marijuana, beer, wine cooler, and liquor) and hard drugs (e.g., inhalants, LSD, amphetamines, cocaine, heroin), independent of both academic performance and affiliation with peers who used drugs. Their sample consisted of 2229 randomly selected high school students from grades 8, 10 and 12 from 17 school districts in Ohio. Engagement was measured as a single-item self-report measure, in which students were asked if they were involved in "any enjoyable extracurricular activities".

Youth Engagement and Smoking

Chung and Elias (1996) administered surveys to 556 adolescents (274 males and 282 females) in grades 9 to 12 who attended high school in New Jersey. The surveys included self-report measures of seven "problem" behaviours: delinquent behaviour (e.g., hitting someone, stealing), smoking, drinking alcoholic beverages such as beer and wine, drinking hard liquor, use of inhalants, taking pills such as uppers and downers, and using hard drugs. The survey also included a measure of the amount and quality of youths' participation in a variety of non-academic activities such as sports. Using cluster analysis, the investigators identified four groupings of the youth who exhibited similar patterns of problem behaviour. One of the clusters they identified (comprising 22.7% of their sample) was made up of youth who showed much higher levels of smoking than the youth in the other three clusters that were identified. These "smokers" had significantly lower levels of participation in various non-academic activities than did individuals in clusters that were characterized by lower levels of smoking.

Youth Engagement and Overall Risk Behaviours

In response to a perceived need to measure youth assets, Oman and his colleagues (Oman, Vesely, McLeroy, Harris-Wyatt, Aspy, Rodine & Marshall, 2002) developed the Youth Asset Scale. On the basis of a review of extant literature and extensive community consultations, including interviews with 100 youth and adult "key informants", a list of potential assets was identified. Factor analyses of these items resulted

in six developmental asset factors, which included the engagement-related variables of "community involvement", "constructive use of time in groups and sports", and "constructive use of time in religious activities or groups". Oman et al. assessed the validity of their asset variables by examining the relation between risk behaviours and the absence of each of the assets. Risk behaviours were obtained by youth self-report and included drug and alcohol use, smoking, fighting, carrying a weapon, truancy, sexual activity, and being arrested or picked up by the police. Participants included 1350 youth with an average age of 15.4 years. Youth were identified as having an asset if they indicated that they participated in the behaviours associated with that asset "usually/almost always", that asset-related behaviours were "very/extremely important to you", or that participation was "mostly/very much like you". Logistical regression indicated that youth who reported an absence of each of the three engagement assets were significant more likely to engage in between three and seven more risk behaviours than youth who had the assets.

Youth Engagement and Socio-emotional Difficulties

McHale, Crouter, and Tucker (2001) examined the relation between engagement and several indices of adjustment as part of a larger study of gender development. The children were assessed at 10 years of age at baseline and again two years later. Adjustment measures included depression, school grades, and conduct problems. Participation in each of seven categories of free-time activities (e.g., hobbies, sports, reading, hanging out) was measured at each time point, as well as demographic information. They found that time spent in hobbies and sports at baseline was inversely related to depression at 12 years of age. Time spent in unstructured activities (hanging out and outdoor play) at baseline predicted adjustment difficulties two years later.

Mahoney, Schweder and Stattin (2002) surveyed 703 Grade 8 adolescents (351 boys and 352 girls), from six communities in central Sweden. They also sent questionnaires to the parents of the children who were surveyed. Analyses were performed on the 537 adolescents (281 girls and 256 boys) whose parents completed a survey. The survey contained measures of involvement in structured after-school community-based activities, such as sports, music, theatre and fine arts, scouting, church organizations and politics. The adolescent respondents also completed a standardized six-item scale used to assess depressed mood (Diekstra, 1995). The scale included such items as: "How often do you feel as if you don't want to live any more?" (1=almost never; 5=very often). The results indicated that adolescents who participated in structured after-school activities had significantly lower levels of depression than did those who did not participate in such activities. The relationship between involvement and depression was especially strong for young people who were "detached" from their parents, in that the parents had little knowledge of their children's activities. The individuals with detached parents showed low levels of depression if they were involved in structured activities, but high levels if they were not.

Youth Engagement, Sexual Activity, and Teenage Parenthood

Miller et al. (1998), using data from a larger interview study with adolescent boys and girls aged 13 to 16, examined the relationship between participation in athletics and sexual activity. Their sample consisted of 611 Western New York adolescents who were asked to indicate their frequency of intercourse and the number of sex partners they had had over the previous 12 months, and their age at first intercourse. Respondents were also asked to indicate whether they had participated in a number of extracurricular activities, including sports, music, drama, and academic clubs. The focus of their analyses of these data was on the relationship between involvement in organized sports and sexual activity. They found that girls who participated in sports showed later onset of sexual activity, had fewer sex partners, and had engaged in sexual activity less frequently than girls who did not participate in sports. Boys who participated in sports did not differ significantly from boys who did not participate with regard to their sexual activity.

Allen, Philliber, Herrling, & Gabriel (1997) conducted an evaluation of a national volunteer program operating in the United States. The program, "Teen Outreach", was designed to prevent adolescent problem behaviours by involving young people in volunteer work. High school students who participated in the

program engaged in a minimum of 20 hours of volunteer work over the course of one school year, supervised by trained program staff who often worked in conjunction with staff and volunteers from local community organizations. In addition to the volunteer work, students met in class once a week during the year to discuss their experiences as volunteers. The program was evaluated at 25 different sites between 1991 and 1995. During this time, students were randomly assigned either to participate in the program, or to be part of a control group. A total of 342 students from grades 9 through 12 participated in the Teen Outreach Program, and 353 students from the same grades were assigned to the control group which did not participate in the program. Background and demographic measures were taken in a pre-test session administered during the first few weeks of the school year. During this pre-testing, students were also asked whether they had ever been pregnant (females) or responsible for a pregnancy (males). Post-test questionnaires containing the same question about pregnancies were administered at the end of the school year, in May or June. Logistic regression analyses of the results, controlling for demographic variables and prior pregnancy, indicated that girls who participated in the program were significantly less likely to become pregnant than were girls from the control group. Indeed, the risk of teen pregnancy for the program group was only 41% of that of the control group.

Youth Engagement, School Failure, and Dropout

The evaluation of the Teen Outreach Program described in the section above also included pre-test and post-test measures of course failure and school suspensions. As part of the pre-testing in the first few weeks of school, students who had been randomly assigned to participate in the Outreach Program (which involved a minimum of 20 hours of volunteer work) or to a control group which was not required to perform volunteer work, were asked if they had failed any courses during the prior year at school, and if they had been suspended in the prior year at school. In May and June of the same year, program participants and control students were asked if, during the current school year, they had failed any courses or if they had been suspended. Analyses of the results indicated that program participants, who had contributed an average of 45.8 hours of volunteer work during the year, were significantly and substantially less likely to have experienced course failure or suspension during the year, even after accounting for baseline levels of failure and suspension. Indeed, the risk of course failure in the Teen Outreach group was less than half that of the control group, and the risk of suspension was only 39% compared to that of control individuals.

Mahoney and Cairns (1997) conducted a longitudinal study of extracurricular school involvement with a sample of nearly 400 adolescents as they moved from Grade 7 to Grade 12. They derived a measure of extracurricular involvements from listings for the students in their school yearbooks across the six years. They also conducted an annual assessment of each youth, and had the youths' teachers rate their social and academic competence. Drop-out rates were determined over the six years of the study by consulting multiple information sources, including school personnel, school records, and interviews with the students. Students were considered to have dropped out if they left school prior to completing the 11th grade. The results of the study indicated that involvement in extracurricular activities was related to a substantial reduction in school dropout. This relationship was strongest for students who were categorized as "at-risk" in terms of their socioeconomic status, and social and academic competence, as rated by their teachers. Extracurricular involvement was associated with nearly a five-fold reduction in dropout rates for the at-risk group.

Janosz, LeBlanc, Boulerice & Tremblay (1997) found a similar relationship between the active participation of young people in structured leisure activities and the rate of school dropout. They used longitudinal samples of two generations of high school students from Quebec. The first sample (contacted initially in 1974) included 791 French-speaking adolescents (438 boys and 353 girls) recruited for a study of delinquency when they were in grades 7 to 11. The second sample (recruited initially in 1985) included 791 French-speaking adolescents (367 boys and 424 girls) in grades 7 to 9 from Montreal who were interviewed as part of a study of psychosocial adjustment in adolescence. All adolescents in both samples completed the Social and Personal Inventory (SPI), which included a measure of structured leisure

activities. Information on school completion was gathered from the central data bank of the Department of Education of Quebec. From this the authors were able to identify individuals who had not completed their secondary school diploma by the age of 22. Results of their analyses for each of the two samples indicated that participation in structured leisure activities was a significant predictor of school dropout; individuals who were more involved in these kinds of participatory activities were less likely to have dropped out of school.

McNeal (1995) examined the relationship between extracurricular activities and high-school dropout using data taken from the High School and Beyond (HSB) study, coordinated by the United States National Center for Educational Statistics. McNeal used a sample of 14,249 students from the first wave of the HSB study. These students had participated in both the baseline (1980) and first follow-up (1982) parts of the study, and either were still in high school or had dropped out by 1982 (early graduates and transfers were not included in the sample). Participation in one of four types of activities (athletic, fine arts, vocational-club and academic-club) was assessed at baseline. At this time, each youth was scored as either having participated or not participated in each of these activities. The results showed significant and substantial reductions in dropout rates for two of the four activities – athletics and fine arts. Students who participated in athletics were an estimated 1.7 times less likely to drop out than students who had not participated in athletics, and students who participated in fine arts activities were 1.2 times less likely to drop out than were students who did not participate in finearts. While the difference was not significant, students who participated in academic clubs were 1.15 time less likely to drop out than non-participants in these kinds of activity.

Youth Engagement and School Achievement

The Eccles and Barber (1999) and Barber, Eccles & Stone (2001) studies of youth who had participated in the Michigan Study of Adolescent Life Transitions (described earlier), in addition to examining the relationship between extracurricular involvements and use of substances, also looked at how extracurricular involvements related to school achievement. The Eccles and Barber (1999) study found that individuals involved in pro-social activities, team sports, the performing arts, school involvement activities (such as student government), and academic clubs, as assessed in Grade 10, had higher grade point averages in Grade 12, and were more likely to be attending college at age 21 than were their non-involved peers. Barber, Eccles and Stone (2001) went on to assess students' academic outcomes eight years after the Grade 10 assessment of extracurricular involvements, at which time the respondents indicated whether they had been awarded any certificates or degrees. They found a significant relationship between participation in all four activities they had assessed, and the likelihood of college graduation. Graduation rates were much higher for individuals who participated in any of the four types of activities than for individuals who had not participated in these kinds of activities.

A longitudinal study by Marsh (1992) also provides evidence for an association between extracurricular activities and positive educational outcomes. Data from the High School and Beyond Study included 36 Grade 10 students from each of 1,015 high schools, selected to create a nationally representative sample of U.S. youth. Twenty-two senior-year and post-secondary outcomes were measured, including academic ability, focus of control, self-concept, educational aspirations, and university attendance, as well as a single engagement index reflecting total participation in extracurricular activities. Potential influences of extracurricular activities on later outcomes were assessed in a series of multiple regressions, in which both background variables and baseline (Grade 10) levels of the outcome variables were controlled. Background variables included socioeconomic status, race, kindergarten attendance, private school attendance, college expectations, repeated grades, school size, urban vs. rural location, and maternal employment. Results indicated that engagement in high school had a positive predictive relation with 13 of the 22 outcome variables. Significant relations were found for the following variables, in order of decreasing effect size: social self-concept, academic self-concept, taking advanced courses, time spent on homework, postsecondary educational aspirations, grades, parental involvement, absenteeism, senior-year educational aspirations, being in an academic track, college attendance, parental aspirations, occupational aspirations.

Youth Engagement and Violent Behaviour

O'Donnell et al. (1999) assessed the impact of participation in community service on violence in youth. They used students in the 7th and 8th grade at two urban schools in New York State for their study. The two schools were closely matched to one another; both served economically disadvantaged neighbourhoods, had almost exclusively minority students, and showed a "high-risk health profile" in terms of violence-related injuries, HIV status and students' standardized test scores. One of the two schools served as an intervention school, and the other as a control school. All students at the intervention school received a classroom curriculum that included a 10-lesson unit focussing on violence prevention. In addition, half the students in the intervention school were randomly assigned to participate in a community service program, in which they spent about 3 hours each week providing service in neighbourhood nursing homes, daycare centres, health clinics, a senior citizens centre, and other settings. Measures of violent behaviour were taken in the fall of the school year, before the program began, and at a 6-month follow-up in the spring, after the program had been in operation for some time. A total of 972 students completed both the baseline and follow-up surveys (230 in the community service plus classroom curriculum intervention, 189 in the curriculum only intervention, and 553 students who from the control school who received neither component). The measure of violent behaviour was a 7-item scale that asked how frequently the respondent had engaged in several violent behaviours (e.g. threatening others, carrying weapons, fighting) in the last three or 12 months.

The results indicated that, for 8th grade students, participation in community service was associated with a significant reduction in violent behaviour. Those 8th grade students who participated in community service showed lower levels of violence than both the 8th grade students from their school who had only the violence prevention curriculum, and students from the control school, who had neither the curriculum nor community service participation. The curriculum-only students did not differ from the control students in level of violence, suggesting that participation in community service was the key factor in producing reduced violence levels.

Youth Engagement, Delinquency, Antisocial Behaviour and Crime

In a study of the relationship between leisure activities and delinquent behaviour, Agnew and Peterson (1989) interviewed 600 students attending grades 9 to 12 in 21 high schools in Atlanta, Georgia. Respondents were asked several questions about their leisure activities, beginning with an open-ended question ("What are your favorite ways of spending your free time?"). Other questions concerned the nature and intensity of their participation. From their responses, the researchers developed a typology of different types of leisure activities, which included "organized activities" (e.g., scouts, church activities, school newspaper), "social activities" (e.g., dating, going to parties), "hanging out/loafing", sports-competitive, and sports-noncompetitive. A score was derived for each type of activity. Delinquency was measured by means of a self-report scale adapted from Gold (1966), in which respondents indicated how often over the previous year they had engaged in 19 different delinquent acts (e.g., "hurt someone badly", "steal something worth more than \$50", "set fire to property", "take part in gang fight", "hit instructor or supervisor"). Delinquent acts were weighted in order of severity, and these severity ratings were used to derive an overall delinquency index, as well as a measure of serious delinquency. The strongest relationship between leisure activities and delinquent behaviour occurred for "organized activities". The more youth participated in these kinds of organized activities, the less likely they were to engage in delinquent acts generally, and to engage in delinquent acts considered "serious". Involvement in noncompetitive sports was also related to delinquent behaviour; the greater the involvement in noncompetitive sports, the lower the level of both total and serious delinquency. In contrast, "hanging out" was associated with increased levels of both total and serious delinquency.

In a longitudinal study of children in grades 5 to 8, Larson (1994) also assessed the relation between participation in extracurricular activities and delinquency. After baseline assessments, the children were assessed again two (Time 2) and four (Time 3) years later. Comparison of Time 1 and Time 2

measurements were conducted on 263 children; 166 children completed measurements at Time 2 and 3. Activity participation was assessed at all three time points and categorized as athletics, youth organizations (e.g., school and nonschool clubs, church groups), and arts/hobbies. Self-reported delinquency was measured at the last two time periods. Participation in each of the three types of engagement was negatively correlated with delinquency from Time 2 to Time 3.

Mahoney (2000) examined the relationship between participation in school extracurricular activities and criminal behaviour using young people who had been part of the Carolina Longitudinal Study (Cairns & Cairns, 1994). The sample included 695 youth (364 girls, 331 boys) recruited from seven public schools in the southeastern United States between 1981 and 1983. They were initially interviewed when they were in the 7th grade, and were assessed annually until the 12th grade. The families of these youth ranged widely in socioeconomic status. Extracurricular involvement was assessed using school yearbooks, as had been done in an earlier study (Mahoney & Cairns, 1997). The investigators used arrest records from the State Bureau of Investigation (SBI) to measure criminal offending. The SBI information was based on arrest reports from local precincts, and included arrest dates and specific charges laid. Crimes tracked in the study included homicide, rape, robbery, aggravated assault, burglary, vandalism, liquor law violations and vagrancy. Approximately 12% of the sample (52 boys and 29 girls) were arrested as young adults. The results of the study indicated that young people who participated in one or more extracurricular activities prior to the 11th grade had lower rates of criminal arrest. The relationship between extracurricular activities and arrest rates was particularly strong for youth who had been categorized as "high-risk", in that they were from low socioeconomic status families, and had been rated by their teachers as being less competent socially and academically, and more aggressive. High-risk youth who did not participate in extracurricular activities tended to be arrested at much higher rates than high-risk youth who had participated in extracurricular activities.

Mahoney & Stattin (2000) conducted another study using data from their sample of 703 Grade 8 adolescents from central Sweden (see Mahoney, Schweder & Statin, 2002, described in the section on depression, above), this time focussing on youth involvement in leisure activities and its relationship to antisocial behaviour. As described earlier, the youth respondents completed a survey asking them to indicate their participation in a variety of activities. These activities were divided into "structured activities" (e.g., church involvement, scouting), which occurred with others in their own age group, had an adult leader, and met at least once a week at a regular time, and "unstructured activities" which did not meet these criteria. Respondents also indicated the extent to which they had participated in a range of eight different antisocial activities (e.g., taken something from a store without paying, been caught by the police, ganged up on another student, taken part in a fight). These eight activities were combined into an index of antisocial behaviour. The results indicated that youth who participated in structured activities showed significantly less antisocial activity than youth who did not participate in structured activities. The opposite pattern was obtained for unstructured activities; youth involved in unstructured activities showed higher levels of antisocial behaviour than youth not involved in unstructured activities. The highest levels of antisocial behaviour occurred with boys who had a combination of no structured participation and involvement in unstructured activity.

Jones and Offord (1989) assessed antisocial behaviour in relation to young people's participation in a community-wide program designed to increase children's and adolescents' participation levels in low socioeconomic areas in Ottawa, Ontario. The program, known as PALS (for "participate and learn skills") was offered to all children in a publicly supported housing complex. The intervention lasted for 32 months, from January 1980 to August 1982. PALS sponsored 40 different programs for children and adolescents in the housing complex during that time. All programs were designed for youth to participate with one another and learn skills. The programs included scouting, ballet, judo, and non-sport activities, as well. The investigators determined that 228 (70.8%) of the 322 children and youth living in the housing complex participated in at least one PALS activity over the 32 months. To assess the impact of the project, Jones and Offord compared police records of charges against juveniles at the program site with charges laid against juveniles in a comparison housing complex from Ottawa that had been matched as closely as possible to the

program complex. In the two years prior to the implementation of the PALS project, the two housing complexes had approximately the same number of charges laid against juveniles. Eighteen charges were laid in the PALS project and 15 were laid in the comparison project. In the 32 month during which the PALS project was in operation, the number of charges laid against juveniles in the intervention community dropped to seven, less than one quarter of the 31 charges laid in the comparison complex. At the same time, the number of charges laid against adults from these two housing complexes was almost the same both before and during the implementation of PALS. These results suggest that programs which are aimed at increasing the level of youth engagement at the community level may have a significant impact on criminal behaviour for an entire community.

Youth Engagement and Physical Activity

Telama, Yang, Laakso, & Viikari (1997) assessed the relationship between participation in physical activity in childhood and adolescence, and physical activity in young adulthood. As part of a national study of "Cardiovascular Risk in Young Finns", the authors surveyed 610 9-year-old, 624 12-year-old, 572 15-year-old, and 503 18-year-old boys and girls in 1980. Physical activity levels were measured by means of a brief questionnaire which included questions concerning the youths' frequency of physical activity (e.g., "how often do you engage in leisure-time physical activity at least half an hour per time?"), as well as their engagement in structured physical activity, such as in a sport club or in competitions (e.g., "how many times a week do you usually engage in the training sessions of a sport club?", "Do you participate in regional competitions?"). Follow-up measures of physical activity were taken with the same subjects three, six, nine and 12 years later, when the individuals were 21, 24, 27 and 30 years of age. The results showed a significant relationship between levels of physical activity in adolescence, and physical activity up to 12 years later, when the subjects were adults. Of the activity measures taken during childhood and adolescence, the best predictors of physical activity in adulthood related to participation in structured athletic activities (i.e., participation in sport club training or in competitions).

Another Finnish study, by Tammelin, Nayha, Hills, & Jarvelin (2003), confirmed the relationship between sports involvement in adolescence and adult physical activity levels. This study used a sample of 7794 individuals (3664 males and 4130 females) born in northern Finland in 1966. These individuals completed a mailed questionnaire focussing on physical activity in 1980, when they were 14 years of age, and completed another mailed questionnaire 17 years later (in 1997-98), when they were 31 years of age. The questionnaire administered at age 14 asked respondents to indicate how often they participated in sports after school hours, and what kinds of sports they were involved in. The questionnaire sent to these individuals at age 31 asked them to indicate how often they participated in light and brisk physical activities (brisk activity was described as physical activity causing at least some sweating and breathlessness), and for how long they engaged in a typical physical activity. This allowed the investigators to categorize the adults into four groups – very active, active, moderately active, or inactive – according to the frequency, intensity and duration of their physical activity. The first two categories represented activity levels sufficient to maintain adequate cardiovascular health. The results of the study showed that level of participation in organized sports after school at age 14 was associated with physical activity levels during adulthood. In particular, participation in sports at least once a week for females and twice a week for males was related to high levels of physical activity in adulthood.

Similar results were found for a national sample of 9815 Canadians. Using the Statistics Canada 1992 General Social Survey, Curtis, McTeer and White (1999) found that previous involvement in high school inter-school sport competition (measured retrospectively) was associated with adult engagement in sports, independent of social background factors. These results were consistent across gender and adult age (approximately 22 to 42 years after high school).

Youth Engagement and Commitment to Others

Humanistic psychologists, among others, consider the willingness to commit to others and to society to be one of the characteristics of healthy personality development (Frankl, 1966; Maslow, 1971). This kind of

"transpersonal commitment" (Magen, 1983), expressed through caring and concern for others, gives one's life a sense of purpose. Many adolescents, particularly those growing up in poverty, do not show this kind of transpersonal commitment; instead, they experience a sense of alienation from society (Yaar-Yuchtman, 1983). Can engagement or involvement counteract the feeling of anomie experienced by youth living in poverty?

Magen, Birenbaum and Ilovich (1992) examined this question by administering a measure of transpersonal involvement to youth from disadvantaged neighbourhoods. Transpersonal commitment was assessed by means of the Life Aspiration Questionnaire (LAQ) in which youth were asked, "What is the best thing you would like to do with your life?". Responses were scored from 1 to 4 according to the extent to which individuals expressed a desire to contribute or commit to others, with level one expressing a purely selfish or hedonistic orientation, and level four expressing a desire to contribute or commit to others or to society. The respondents were 137 young people, aged 14 to 17, who lived in economically disadvantaged neighbourhoods in Israel. The sample was divided into three groups: those who had actively participated in volunteer activities for a 12 to 14 month period (57 youth); those who had planned to volunteer, but had not yet begun their volunteer work (37 youth); and those who reported no past involvement and no plans for future involvement in volunteer work (42 youth). The results indicated that the active volunteers showed a significantly higher level of transpersonal commitment than did either the beginning volunteers or the non-volunteers. The authors conclude that volunteer experiences were associated with lowered feelings of anomie in young people living in poverty, and provide them with a sense of purpose and coherence.

Johnson, Beebe, Mortimer and Snyder (1998) found a similar relationship between volunteer work and the importance of commitment to others. The data for their study were obtained from the first four waves of the Youth Development Study, a longitudinal investigation of work experience and its impact on adolescent development and mental health. Questionnaires were administered to over 900 students in the St. Paul Public School District in Minnesota when they were in grades 9, 10, 11 and 12 (waves 1 to 4). Participation in volunteer work was ascertained by a question asking, "Do you currently do any volunteer work (without pay)?" If they had done volunteer work, the students were then asked how many hours per week they spent volunteering, and what type of work they did. Respondents were also asked to indicate how important they thought participation as a citizen in their community would be for them in the future, on a scale from 1 (not at all important) to 4 (extremely important). The results showed a significant relationship between volunteering and the anticipated importance of community involvement, even after controlling for parental education, age, family income, race, gender, and family composition.

RESEARCH ISSUES

Causation and Correlation

The research reviewed in the preceding pages clearly indicates a link between youth engagement and health. Much of the research evidence, however, has been correlational and concurrent in nature, in which both engagement and health variables were measured at the same point in time. Youth engagement researchers have long recognized problems in making causal inferences from such data (e.g., Holland & Andre, 1987; Marsh, 1992). First, it is difficult to determine whether it is engagement that causes improved health or the other way around. Engagement, for example, has been associated with an increased sense of self-efficacy. Experiences of successful engagement may result in enhanced efficacy. On the other hand, a strong sense of self-efficacy may be the reason why youth become engaged in the first place. Further, both of these causal relationships may be operating (e.g., engagement is both a cause and result of self-efficacy).

Second, correlational links between engagement and health may be a function of a shared connection to a third variable (e.g., both engagement and a sense of self-efficacy may be the result of financial resources). Finally, connections between engagement and health may be a function of selection effects, which are potential confounds in studies in which youth determine their own level of engagement. Youth who are engaged may differ from their non-engaged peers in a number of important ways even before they become

engaged. Further, healthier youth may be more likely to maintain their engagement over time than less healthy youth and thus possibly amplify pre-existing differences between engaged and non-engaged youth. There are a variety of research strategies, however, that are useful in unraveling issues of correlation and causation, including longitudinal designs, statistical controls, and intervention studies. Indeed, investigators using these strategies have generated support for the hypothesis that engagement causes a variety of health outcomes, as well as some evidence for bidirectionality and selection effects.

Longitudinal studies using statistical controls provide somewhat stronger support for a causal role for engagement than concurrent correlational designs. In these longitudinal studies, engagement is measured prior to the assessment of outcomes. Potential differences between engaged and non-engaged youth in variables that may be relevant to outcomes are measured and statistically controlled. Marsh's (1992) study of the effects of extracurricular activity participation during the last two years of high school is a good example of this approach. In this longitudinal study, the relation between engagement and a variety of educational and self-concept "outcome" variables were found to be independent of any pre-existing differences between engaged and non-engaged youth on the predicted outcome variables, as well as any baseline differences on demographic variables.

Cross-lagged research designs provide even stronger methods for demonstrating causal links than the longitudinal approach described above. Larson's (1994) longitudinal investigation of the impact of extracurricular involvement on delinquency (described above) is a good example of this research strategy. Path analyses were conducted separately for each of the categories of engagement (sports, arts and hobbies, and youth group activities) for two cohorts of youth (Grades 5/6 and Grades 7/8 at baseline), who were reassessed two and four years later. Controlling for baseline levels of each variable, path analyses were conducted to determine the influence of Time 2 engagement on Time 3 delinquency, as well as the influence of Time 2 delinquency on engagement at Time 3. Overall, Larson's (1994) results provide good evidence that involvement in arts and hobbies, as well as participation in youth group activities, may reduce later delinquency. There was no evidence for the hypothesis that delinquency affected subsequent engagement in either youth group activities or arts and hobbies. Sports involvement, however, did not appear to influence later delinquency. In fact, the significant inverse correlation between sports at Time 2 and Time 3 delinquency was better explained by the impact of delinquency on sports participation than the effect of sports participation on delinquency.

In a similarly designed study, McHale, Crouter, and Tucker (2001) investigated relations between free time activities and adjustment in middle childhood and early adolescence. They wanted to test the hypothesis that youth select themselves into activities on the basis of pre-existing background factors or personal attributes. McHale and her colleagues tested whether adjustment at 10 years of age predicted activities at 12 years of age better than age 10 activities predicted age 12 adjustment. They concluded that there was more support for the hypothesis that adjustment predicted activities than the reverse pattern, although they concluded that associations between activities and adjustment over time were probably reciprocal. Similar to Larson's (1994) findings, they found the relation depended on the specific activity and adjustment measure. In addition, the measures of activity participation showed lower longitudinal stability than the adjustment measures and this differential stability may have affected the results.

In our last example of the use of lagged analyses to sort out causal direction, Posner and Vandell (1999) examined the impact of after-school activities on the development of low-income urban children by assessing potential bidirectional effects between adjustment and engagement. Although the age range of these participants falls slightly below the lower bounds of our definition of youth, we include this study because this type of design has been used only rarely in studying engagement in youth. Posner and Vandell measured both after-school activities (e.g., academics, extracurricular, coached sports) and adjustment (grades, emotional adjustment, work habits, and behaviour problems) in 194 children in Grade 3 and again in Grade 5. They found evidence that Grade 3 children who spent more time in non-sport extracurricular activities were better adjusted in Grade 5, independent of Grade 3 adjustment than children who were less involved in these activities, while involvement in coached sports was associated with poorer subsequent adjustment. This evidence suggests that activity involvement may have an impact on later adjustment.

However, their results also indicate that adjustment affects later activity choice. Children who were well adjusted academically and emotionally in Grade 3 were found to be more likely to become involved in academic and extracurricular in Grade 5 and less likely to engage in unstructured social contact, even after controlling for Grade 3 activity participation. Although the results varied somewhat by race of the children, this study provides evidence for a bidirectional causal relation between engagement and adjustment.

Perhaps the most convincing way to establish a causal link between engagement and health is to develop a program designed to enhance engagement, and look at the program's impact on health and well-being: "The clearest case for the beneficial effects of activity involvement will come from applied research using intervention or prevention research designs. Partnerships between traditional researchers and youth development program coordinators may prove especially fruitful for this line of inquiry" (Barber, Eccles, & Stone, 2001, p451-452). The strongest evidence for a causal role of engagement in producing positive health outcomes would be provided by experimental or quasi-experimental research designs. In an ideal approach, youth would be randomly assigned to be in either a "engaged" or "non-engaged" group, the groups would be equal on all non-engagement variables, the engagement experience would be consistent for all youth in the engagement group, and potential outcome variables would be measured before and after the engagement experience. Under these conditions, differences in outcomes between the engagement and non-engagement groups could be interpreted as "caused" by the engagement itself. It is difficult to conduct such true experiments of youth engagement, however, for a variety of reasons, particularly the difficulty in establishing necessary experimental control over youth behaviour and the engagement activities. There are several quasi-experimental studies, however, that provide relatively strong support for the influence of engagement on health.

Assessment of the "Youth Volunteer" projects by Hamilton and Fenzel (1988) showed that, overall, participants in the program showed modest but enduring gains in social responsibility over the project duration. Youth in community service activities made greater gains in sense of social responsibility than participants engaged in child care activities. These results were based on a sample of 44 adolescents, ranging in age from 11 to 17 years of age. Conclusions from this study are limited, however, due to its relatively small sample size and lack of a control group. The study by Jones and Offord (1989), described earlier, provides support for engagement or participation as the causal factor. A primary component of their preventive intervention was the opportunity for youth to participate in various community activities, directed by highly skilled adults. They found that a community that offered young people opportunities for participation had lower rates of youth crime than did a matched control community that did not offer such opportunities. Allen, Philliber, Herling & Gabriel (1997) found that adolescents who were randomly assigned to participate in a community service program showed significantly better long-term adjustment than youth who were assigned to a control condition in which they were not given the opportunity to participate in community service.

In another well-controlled intervention study, O'Donnell and her colleagues (O'Donnell et al., 1999), showed that community service involvement led to reduced violence. Details of the study are described above in the section on the relation between engagement and violent/delinquent behaviours. There are several specific design aspects of this study, however, that are particularly important for determining the potential causal role of engagement on health outcomes. First, students were randomly assigned to experimental and control groups, through their classrooms. This means that groups were likely to be equal in background and personal attributes before the engagement intervention. It also eliminates selection effects as a possible explanation for the results. Second, the authors included pre- and post-test measures, as well as a 6-month follow-up, to assess long-term effects. There is clearly a need for similarly designed experimental studies to clarify the causal role of engagement in promoting healthy youth.

However, there is much about the relationship between youth engagement and health outcomes that remains to be understood. Thus, the allure of intervention studies (aimed, for example, at assessing the health impact of some pre-designed engagement activity) should not replace the equally important (and perhaps preliminary) goal of understanding the processes linking youth development, youth engagement, and health outcomes. Some of these issues are discussed below.

Mediating Processes

In order to establish that engagement has an impact on health, it is necessary to demonstrate statistical links between engagement and subsequent outcomes. However, a convincing argument for a causal role for engagement also requires understanding how engagement influences well-being. These explanatory processes, which specify the mechanisms through which engagement operates, are known as mediating variables. For example, if engagement leads to reduced marijuana use because engaged youth make friends in an activity with other youth who believe drug use is wrong, then the relation between engagement and drug use is said to be "mediated" by friends' values.

Engagement is thought to have at least part of its impact by providing rich opportunities for individual development that are not otherwise easily available to youth. Effective activities are characterized by high structure; skill development, which increases in complexity and challenge in response to changes in the youth's abilities; performance feedback; and adult leadership (Mahoney, 2000; Mahoney & Stattin, 2000), as well as requiring focused attention, sustained effort, and initiative (Larson, 2000). These activities, therefore, provide good opportunities for youth to develop specific competencies related to their domain of engagement, in addition to general planning, social, and problem-solving skills. Engaged youth are likely to experience success and recognition for their skill development, from both peers and adults. These conditions are conducive to the development of mastery, self-efficacy, and positive self-esteem (e.g., Csikszentmihalyi & Larson, 1984; Werner, 1993). In contrast, engagement experiences that over-emphasize competition, compliance and conformity or are characterized by inappropriate negative feedback may be associated with relatively poor health outcomes (see Petitpas & Champagne, 2000).

Participation in youth activities is typically voluntary and activities are self-selected because they are challenging and interesting. Such activities differ substantially from both academic experiences, which typically are characterized by concentration and challenge but low intrinsic motivation, and unstructured leisure time, in which youth report high intrinsic motivation but low challenge and concentration (Csikszentmihalyi & Larson, 1984; Larson, 2000). Successful adolescent development requires environments that provide a match between the adolescent's increasing need for autonomy and opportunities for initiative, leadership, and self-determination, within a supportive social context (Eccles, Midgley, Wigfield, Buchana, Reuman, Flanagan, & MacIver, 1993). Engagement activities are more likely to provide these developmental opportunities than either school or unstructured leisure time (Csikszentmihalyi & Larson, 1984; Larson, 2000).

Engagement activities may affect adolescent health through their social context, as well as at an individual level. Activities provide possibilities for establishing friendships with peers who have similar interests and values, as well as opportunities for youth to form positive relationships with supportive adults outside the family (e.g., Barber, Eccles & Barber, 1999; Larson, 1994; McHale et al., 2001; Werner, 1993). Adolescents' choices of activities help define their peer group; peer group relationships, once established, then influence activity choices (Barber et al., 2001). Thus, if participation in an activity brings an adolescent into close relationships with youth who hold positive values and demonstrate adaptive behaviours, involvement is likely to promote healthy behaviours in the youth. However, if participation brings the adolescent into contact with peers who are engaged in problem behaviours, especially in activities with little structure or adult leadership, engagement may result in negative effects (e.g., Eccles & Barber, 1999; Larson, 1994; Mahoney & Stattin 2000).

Adult activity leaders can serve as role models and mentors, as well as providing social, emotional and instrumental support (Eccles & Barber, 1999; Larson, 1994). Relationships with adults outside the family may help adolescents establish the autonomy necessary for a successful transition to adulthood. In addition, engagement activities may facilitate adolescents' social integration into the larger community, since such activities frequently provide connections to adult community leaders, promote community values and a sense of social responsibility, and introduce youth to community organizations and how they function.

Both social and individual aspects of engagement experiences contribute to the adolescent's sense of self. Identity formation is a major developmental task of adolescence (Erikson, 1968) and engagement may be linked to health outcomes through its role in identity formation. Eccles and Barber (1999) proposed a synergistic model that included identity, peer group membership, and activity involvement. In this model, participation in specific activities influences identity development directly by helping youth develop their competencies and explore their interests. Participation also has an indirect influence on identity development by shaping the adolescents' peer network, which then affects identity formation through processes such as reinforcement of values and identification with peer norms. Hypothesized connections between activity participation, peer networks, and sense of identity are bidirectional, reflecting mutual influences between participation in activities and peer group membership, between activity choices and sense of identity, and between peer group membership and identity development. Further, Yates and Youniss (1996) identified three processes that may mediate between community engagement and identity development, based on their review of the research literature on community service: (a) gaining a sense of what one can accomplish through participation, creating a sense of agency; (b) establishing connections with others; and (c) increasing moral-political awareness. The latter two processes facilitate the development of identity by placing the self in a socio-historical context and seeing the self in relation to others in the community.

Although researchers have suggested several potential explanations for the links between engagement and health outcomes, there have been relatively few direct empirical tests of the proposed mediating processes. In the following paragraphs, we describe several investigations that examine some of these hypothesized mediators.

Marsh's (1992) study was designed to test two competing models of how engagement affects a wide range of senior and postsecondary outcomes. The "zero-sum" model (Coleman, 1961) suggests that engagement in extracurricular activities interferes with academic success because it takes time and energy away from educational achievements, narrowly defined. In contrast, according to the "committed-to-school" model (see Holland & Andre, 1987), extracurricular activities improve academic self-concept and increase students' commitment to school, which in turn leads to greater academic success. Thus, the two models propose two different mediators (distraction for educational goals and enhanced commitment to school, respectively) and two different effects of engagement (negative for the zero-sum model and positive for the commitment-to-school model). Results from multiple regression analyses yielded support for the commitment-to-school model, in that engagement was positively related to subsequent outcomes and at least part of its effect could be explained by changes in academic self-concept.

Johnson, Jang, Larson, & DeLi (2001) assessed a mediated model of the effects of religiosity on delinquency, with a longitudinal sample of 1725 adolescents (ages 11 to 17) from the National Youth Survey. Using structural equation modeling, Johnson and his colleagues specifically tested whether the relation between religiosity and delinquency was spurious or indirect. Religiosity was hypothesized to affect delinquency through the processes of social bonding (association with delinquent peers) and social learning (disapproval of delinquent behaviours). (Although religiosity by itself is not included in our definition of engagement, their latent variable included active participation in church-related activities. This study is included because it is one of the few using structural equation modeling to examine mediation in the context of engagement.) The latent construct of religiosity was measured by four variables: frequency of attendance at religious services, importance of religion, amount of time involved in community-based religious activities, and importance of community-based religious activities. Delinquency was measured by an index reflecting both the frequency and seriousness of delinquent acts. Results indicated that the effects of religiosity on delinquency were partially mediated by delinquent associations and beliefs about delinquent behaviours. Thus, one of the ways that religiosity reduces delinquency over time is that it increases adolescents' beliefs that delinquent acts are wrong. In addition, religiosity reduces delinquency because it lowers the proportion of the adolescents' friends who engage in delinquent behaviours.

In a more micro-level analysis of the engagement process, Heath (see Heath, 1999) examined language changes as possible mediators between engagement experiences and positive outcomes. Heath recorded

language occurring in a variety of youth programs (e.g., YMCA, 4-H), which had been judged to be effective by youth. Over one million words collected over a 5-year period were analyzed for language changes during the duration of the programs. She found that the use of hypothetical thinking, problem solving, conditional ("if-then") constructions, future-oriented language, and percentage of speech initiated by youth increased over the course of engagement. Thus, the effects of engagement on positive outcomes may be partially explained by the acquisition of language tools for expressing agency and complex thinking (see Larson, 2000).

Moderating Variables

Although the research summarized above has generally shown a positive relation between engagement and health-related outcomes, there have been some inconsistencies in the literature. The effect sizes have varied considerably in size and even, in a few cases, the direction of the effect has been negative rather than positive. In this section, we review some of the factors that may moderate the relation between engagement and outcomes. Some of these factors are characteristics of the activities (e.g., type of engagement, structure, quality of social support in the activity), and other factors are primarily individual attributes (e.g., age, gender, risk status).

The construct of "engagement" encompasses a wide variety of activities in diverse contexts. Although some researchers have combined different types of activities into a single index of engagement (e.g., Mahoney et al., 2002; Marsh, 1992) or have found similar effects across a number of different activities (e.g., Barber et al., 2001 for college graduation rates), the relation between engagement and outcomes has often varied as a function of the specific type of engagement. McHale et al. (2001), in their longitudinal study of leisure time use and adjustment in early adolescence, found that hobbies and sports predicted later positive development, while playing outdoors and "hanging around" predicted later adjustment difficulties. Time spent reading was associated with both negative and positive outcomes, predicting both depression and academic achievement. McNeal (1995) found that participation in fine arts and athletics predicted reduced school dropout rates; involvement in vocational clubs, however, did not show a similar effect. Barber and her colleagues (Barber et al., 2001; Eccles & Barber, 1999) found that the relation between engagement and subsequent alcohol use was dependent on the specific activity. Community service was associated with lower use of alcohol, but team sport participation was associated with increased drinking.

Thus, type of activity appears to be an important moderator of the relation between engagement and outcome. Another potentially important moderator is the extent to which the engagement activity is structured or unstructured. In a relatively early study, Agnew and Peterson (1989) concluded that participation in organized activities was associated with reduced delinquency, while time spent in unstructured "hanging out" predicted increased difficulty. Mahoney and Stattin (2000) recently reported a similar finding. High school youth who were involved in structured activities showed lower antisocial behaviours, compared with peers who spent relatively large amounts of time in unstructured activities. Further, in a separate study, time spent in unsupervised peer contexts was associated with subsequent adjustment problems in a longitudinal study of early adolescence, while leisure time spent with parents and non-parental adults predicted positive outcomes (McHale et al., 2001).

In addition to characteristics of the engagement activities themselves, characteristics of the individual have been shown to moderate associations between engagement and outcomes. Age, gender, and risk status have been most commonly investigated as potential moderator variables.

Overall, the relations between engagement and health-related outcomes have been relatively consistent across age and gender. Several exceptions to this generalization, however, have been found in the literature reviewed for this report and will be summarized briefly below. Involvement in sports showed a stronger relationship with adolescent girls' sexual activity than with boys (Allen et al., 1997; Miller et al., 1998). The effects of engagement on alcohol use, however, may be greater for boys than girls. Vicary et al. (1998) found that a variety of engagement experiences (sports, hobbies and crafts, and church involvement) predicted lower subsequent alcohol use for boys, but not girls. Hamilton and Fenzel (1988) found that girls

increased their sense of social responsibility after participation in community service than boys. Finally, a complex set of interactions between gender, engagement type, and time was found by Barber et al. (2001) in their longitudinal study of high school activity participation and post-secondary school outcomes. They found, for example, that females who participated in high school sports teams increased their use of alcohol over time faster than females who did not participate in sports. Males involved in sports teams in high school, however, showed lower increases in alcohol use than peers who did not participate in school sports.

Where age differences have been reported, links between engagement and outcomes tend to be stronger in older youth. Larson (1994), for example found that the relation between participation in youth organization, hobbies, and sports and subsequent delinquency was stronger for youth who were in grades 9 and 10 than for those who were in grades 7 and 8 at the beginning of their cross-lagged measurements. Similarly, O'Donnell et al. (1999) reported significant reduction of violence following an intervention consisting of community service experience and a classroom-based health curriculum for Grade 8 students; similar intervention was not effective for Grade 7 students. The existence of an age effect in this study is difficult to confirm, however, since age was confounded with type of community experience.

It appears that engagement may have stronger links with positive outcomes among youth who are "at risk" than youth who are less vulnerable. Although concluding that the impact of extracurricular activities on a wide range of adjustment indices were generally consistent across youth from a wide variety of backgrounds, Marsh (1992) reported that students from lower socioeconomic status (SES) families showed more benefit than youth from more affluent families. Mahoney (2000)'s results showed that the relation between extracurricular activities and subsequent arrest rates were strongest for high-risk youth (i.e., those from lower SES backgrounds, less competent, more aggressive). Participation in structured after-school activities had a stronger inverse correlation with depression for youth who had distant relationships with their parents than for peers with closer relationships. Similarly, Smoll et al. (1993) found that the effects of increased social support and instructional effectiveness of coaches on self-esteem was greater for boys with initially low self-esteem than for boys who started the season with high self-esteem. Finally, Komro et al. (1996) found that involvement in planning alcohol-free events was more effective in reducing later drinking among youth who were already consuming alcohol than in their abstaining peers.

Implications for Future Research

The nature of our literature review has been primarily descriptive. However, an alternative type of review, known as meta-analysis, provides a complementary methodology for reviewing research results. In addition to describing the nature of the results, a quantitative summary can be performed in which, for example, the strength of the relationship between engagement and various types of outcomes can be tabulated across studies. Together a descriptive and meta-analytic review of the literature would provide comprehensive answers to two main questions: (1) is youth engagement related to health outcomes and (2) what is the strength of this relationship? To date, a quantitative review of the literature has not been published.

Further, each of the issues discussed above in relation to moderating, mediating, and causal factors have important implications for future research. For example, little is known about the process by which engagement is linked to outcomes (mediating processes). Thus, research is needed in which "pathways" to engagement are examined in the context of health outcomes, for example, through the naturalistic, longitudinal study of youth (Farrow & Saewyc, 2002). Further, we need to better understand how and why engagement is linked to health outcomes, depending on the nature of the engagement, the type of outcome, and the particular persons involved (moderating processes). This will require longitudinal studies involving large sample sizes of youth, including highly involved and highly non-engaged youth from various backgrounds. Such studies will also require measurement of a variety of health-related outcomes and types of engagement.

Relatedly, few theoretical accounts of the linkage between youth engagement and positive health outcomes have emerged. There is a clear need for a theoretical account that synthesizes our current state of knowledge and provides a conceptual model explaining the linkages discussed above (Blum & Ellen,

