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Participation in clubs and groups from childhood to adolescence and its effects on attachment and self-esteem

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Abstract

We examined social participation in organized clubs and groups from childhood to adolescence in a sample of young people from Dunedin, New Zealand. Groups were broadly categorized as “sports” and “cultural/youth” groups. While the results indicated high levels of participation in childhood with a decline over the ensuing adolescent years, path analyses suggested strong continuities in participation over time. Both family “active-recreational” orientation (ARO) and “intellectual-cultural” orientation (ICO) predicted participation, and mediated the effects of disadvantage on participation. Participation was significantly related to adolescent attachment to parents, friends and school/workplace, as well as self-perceived strengths, after controlling for early family disadvantage and social support, peer attachment and literacy. The effect of participation in adolescence is to widen the “social convoy” to which young people are exposed as well as strengthening relationships within that convoy.

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Introduction

Kahn and Antonucci (1980) introduced the concept of the “social convoy” to describe the personal network of family, friends and others that accompany an individual throughout the life course. For young people, parents and friends perhaps constitute the most important part of the social convoy. A relatively unexamined part of this convoy concerns the social ties adolescents might derive from participation in organized clubs and groups as varied as sports clubs, and cultural and religious groups. While there has been some research on the “spillover” of this social capital to the community, there has been relatively little research on the private good or benefit to the young people who participate. From both a developmental and social learning theory perspective (Crosnoe, 2000), participation in such groups might be expected to play an important part of the socialization process. Membership might facilitate social development by increasing friendships within groups; linking like-minded peers; strengthening the relationship between individual and family; exposure to other world views; and enabling young people to develop skills such as acting co-operatively and taking different perspectives. As these groups are usually run by adults such as coaches, teachers, or even just motivated and well-meaning amateurs (i.e. parents), young people are exposed to the care of adults beyond their immediate family. Membership might also be seen as a dynamic process linking the adolescent to larger social forces within the community. Allison (1998), writing of the role of sport in civil society, argues for the central relationship between participation and learning to trust others. Organized activities may expose the individual to particular sets of values about competition, co-operation, respect for others, legitimate expression of talent and an acceptance of authority and rule-governed behaviour.

Participation among adolescents in organized clubs, groups and other related activities seems to be relatively high. A 1986 survey of some 4000 NZ teenagers aged from 12 to 16 years indicated that 36% of girls and 44% of boys took part in a community group such as a sporting club or youth group at least weekly (Silva, 1987). Comparative rates of participation in drama, singing, music or related activities were 41% of girls and 14% of boys; voluntary work was undertaken on a weekly basis by 24% of girls and 29% of boys. Recent US data suggest that nearly two-thirds of high school students participate in at least one sports team either in or out of school, although participation was higher among males and younger students (Pate, Trost, Levin, & Dowda, 2000). Similarly, Dovey, Reeder, and Chalmers (1998), in a longitudinal study of NZ youth, observed a drop in participation in team sports such as rugby football, soccer, netball and volleyball from 15 to 18 years, with females being less active than males at both ages. High rates of participation have been reported also for extracurricular activities in school although here rates of participation increased from the middle to high school years (Mahoney & Cairns, 1997).

What evidence there is suggests continuity of participation over time. Larson (1994) reported that membership of non-school groups in preadolescence was moderately predictive of later participation in the adolescent years. The adult literature indicates that participation varies with socioeconomic status (SES) (Lindstrom, Hanson, & Ostergren, 2001), and there is evidence to suggest that SES is related to youth participation in adult organized groups (Larson, 1994; Coleman & Hendry, 2000). Prosocial parental values are also likely to influence youth participation (Hart & Fegley, 1995; Chan & Elder, 2001).

What evidence is there that participation is healthy? Pate et al. (2000) reported that participation in team sports was associated with positive health behaviours such as better

nutrition, greater levels of physical activity, less illicit drug use, less carrying of weapons and safer sexual activity. However, these effects were not uniform across different ethnic groups, and other longitudinal studies have found no effects associated with team sport participation on delinquency (Skolnick, 1993; Begg, Langley, Moffitt, & Marshall, 1996). Larson (1994) has reported evidence of a reverse causal relationship whereby early delinquency suppressed later sports participation.

Cross-sectional studies indicate that participation in extracurricular activities at high school is associated with higher levels of social self-concept and perceived strengths (Rosenberg, 1965; Williams & McGee, 1991; Marsh, 1992). Such studies, however, cannot disentangle the causal direction of the relationship, and while it is tempting to attribute higher levels of self-esteem to participation, the reverse could equally be true (Rosenberg, 1965). Larson (1994), e.g. reported no relationship between participation in various extracurricular activities and self-esteem. In terms of a social integration hypothesis, Marsh (1992) found that participation in extracurricular activities strengthened ties to school as well as increasing social and athletic self-concept. Further, participation was related to greater involvement with parents and an orientation towards the future. Mahoney and Cairns (1997) found that participation in a range of extracurricular activities reduced school dropout, especially among students at higher risk of early leaving due to academic or behavioural difficulties. These authors argue that participation provides an entry point into more conventional social networks, as well as promoting the individual's own interests. Finally, research on youth participation in community service and political action, suggests positive outcomes in terms of self-concept and social reasoning, sense of social responsibility and social justice, and future intention to engage in volunteer service (Giles & Eyler, 1994; Hart & Fegley, 1995; Johnson, Beebe, Mortimer, & Snyder, 1998; Yates, 1999).

So, participation among young people in formal clubs and groups is relatively common and reflects aspects of family life, most likely in terms of socioeconomic disadvantage and beliefs about the value of participation. The benefits of participation may include increased self-esteem and a stronger sense of attachment to and involvement with others. However, much of this research has not necessarily allowed a strong test of the causal pathways involved. In the present study we examined participation in organized clubs and groups outside of school in the Dunedin Multidisciplinary Health and Development Study (DMHDS: Silva & McCann, 1996), a longitudinal study of some 1000 young New Zealanders. Two previous papers from the DMHDS (Begg et al., 1996; Dovey et al., 1998) have examined sports participation in adolescence relating to delinquency, and the decline in sports participation with school leaving, respectively. In this paper we: (a) describe patterns of participation in organized clubs, groups and activities from ages 9–21 years; (b) identify sociodemographic predictors of participation; and (c) investigate to what extent participation is associated with positive outcomes in mid and late adolescence especially in terms of self-esteem and attachment. The two earlier papers did not address these issues.

Method

Sample

The participants belonged to a cohort born between 1 April 1972 and 31 March 1973 and enrolled in the DMHDS at age 3 when 1037 of the 1139 eligible children were first assessed (Silva

& McCann, 1996). Subsequent assessments occurred every 2 years after age 3 to age 15 years, and then at ages 18, 21, 26 and most recently 32 years (2003–2005). Sample retention remained high over the period of assessments reported in this study. From ages 5–11 years, 90% or more of the sample participated in the assessments. Age 13 years had the lowest participation rate at 82% follow-up. Subsequent assessments at ages 15, 18 and 21 years had rates of participation at 95% or above. While there were some missing values for particular measures, missing values were relatively infrequent for the participation questions. For example, at age 15 years, 962 completed the questions relating to group participation, representing 93.5% of the surviving sample. The sample is somewhat socioeconomically advantaged when compared with the remainder of New Zealand, and it is under-representative of Maori and Pacific Islands people.

Procedure

Participants were assessed as near as possible to their birthdays. Prior to age 11, the child and an accompanying parent (usually the mother) attended the Dunedin unit for a day's assessment. Thereafter, the adolescents themselves were the primary source of personal information, which was usually collected in face-to-face interviews conducted for the most part at the Dunedin unit. Parents completed a postal questionnaire requesting information about family life and other aspects of their child's health, education and behaviour.

Measures

Participation in clubs and groups from childhood to adulthood

At the age 9 assessment, parents were asked: "Does (name) belong to any organized groups outside of school or home which he/she attends regularly?" Responses were recorded verbatim. At age 11, this question was included on the parent questionnaire and amended to: "Does (name) belong to any organized groups or activities (such as scouts, gym, music, soccer, cricket, Sunday school) outside school or home which he/she attends regularly?" Parents were asked to specify the organizations and responses were recorded on the questionnaire and classified into: (1) sports at team (e.g. rugby, marching) or individual level (e.g. martial arts, BMX club); and (2) other activities including cultural groups (music, drama, Maori groups); dancing of all types; cubs and brownies, scouts and guides, sea cadets; religious groups such as Sunday school; and volunteer activities such as St John's brigade (first aid).

At ages 13 and 15, each adolescent was asked by interview: "Do you belong to any organized clubs or groups or activities outside school—e.g. Scouts, gym, soccer, cricket, music or ballet?" At age 18 they were asked: "Do you belong to any organized clubs, groups or activities—these can be cultural, recreational, social or political?" and "Do you play any organized sport for your (school, work, university, etc.)?" Responses at these three ages were recorded. At age 21, individuals were asked to indicate degree of involvement in sports teams, church groups, labour unions, service organizations, business or professional groups, youth groups, political organizations, neighbourhood organizations, charity organizations and hobby groups. Involvement was rated 3, 2, 1 and 0 representing "involved a great deal," "somewhat," "a little," and "don't belong," respectively.

Childhood background measures

We hypothesized that participation might reflect socioeconomic disadvantage as well as the extent to which family values encouraged participation. McGee, Williams, and Nada-Raja (2001) developed a “disadvantage index” to describe the home environment from birth to 9 years. The index included low SES indicated by the father having a semi-skilled or unskilled job; the mother being 20 years of age or less at first pregnancy; the mother having no education beyond high school (about three-quarters of such women had a school qualification gained after 3 years of high school only); and single parenting. The index was formed by summing these features of the child’s home life up to age 9 years, resulting in a possible disadvantage score from 0 to 4.

At ages 7 and 9 years, the parent completed the 90-item (True/False) Family Environment Scale (FES; Moos & Moos, 1981). Two relevant 9-item subscales from the FES are the active-recreational orientation (ARO) subscale and the intellectual-cultural orientation (ICO) subscale. The former measures the “extent of participation in social and recreational activities” (e.g. “we spend most weekends and evenings at home”) and the latter the “degree of interest in political, social, intellectual and cultural activities” (e.g. “we are not that interested in cultural activities”) within the family (Moos & Moos, 1981, p. 2). The two scales show good internal consistency with coefficient alphas of .67 for ARO and .78 for ICO (Moos & Moos, 1981). In the present study, levels of ARO and ICO from ages 7 to 9 years were determined by averaging across the two assessment occasions. If a score was only available at one age, then that score was used. Family social support was assessed by the Family Relations Index (FRI; Holahan & Moos, 1983) based upon the FES subscales of cohesion, expressiveness of feeling and conflict. These three scales show good internal consistency with coefficient alphas of .78, .69 and .75, respectively. A FRI score was obtained by averaging across the assessments at ages 7 and 9 years or taking a single FRI score if only available on one occasion.

Childhood peer attachment was derived from the Rutter Child Scale A for parent and Child Scale B for teacher (Rutter, Tizard, & Whitmore, 1970). These scales contain the item “not liked by other children” scored 0 = “does not apply”; 1 = “applies somewhat”; 2 = “definitely applies.” The ratings were summed across ages 7 and 9 providing a score from 0 to 8. Coefficient alpha for these four items was .45 suggesting moderate internal consistency.

We did not have a standardized measure of early school attachment. However, early reading ability has been shown to predict later school attachment (McGee, Share, Moffitt, Williams, & Silva, 1988). Reading was assessed at 7 and 9 years using the 110-item Burt Word Reading test of word recognition (Scottish Council for Research in Education, 1976). While a test of word recognition, the test correlates highly with prose reading ability (Silva, 1981). Scores were standardized separately for boys and girls, and averaged.

Self-perceived strengths

At ages 15, 18 and 21 years, sample members completed a “strengths” questionnaire consisting of 22 items such as “friendly”, “sense of humour”, and “outgoing.” Respondents were asked to circle those items best describing them and a score was derived from the sum of items endorsed. Williams and McGee (1991) provide a description of the scale and its psychometric properties; internal consistency of this scale was high with coefficient alpha of .78.

Attachment to parents, peers and place of education or work

At age 15, self-perceived attachment to parents and peers was assessed using a shortened version of the [Armsden and Greenberg \(1987\)](#) Inventory of Parent and Peer Attachment. This 24-item questionnaire assessed perceived trust in, communication with, and alienation from parents and peers, respectively (see [Nada Raja, McGee, & Stanton, 1992](#)). Coefficient alpha was .82 for the parent scale and .80 for the peer-scale indicating high internal consistency. School attachment was assessed by a visual analogue scale on a card showing five-layered concentric circles with 1 in the innermost circle and 5 in the outermost. Each adolescent was asked to imagine that the circles represented all the activities and things taking place at their school and then to rate “how far from the centre of things are you?” The measure was adapted from [Elliott and Voss \(1974\)](#). At ages 18 and 21 years, self-perceived attachments to family, friends and place of education or work were assessed using a similar analogue measure.

Statistical analysis

Descriptive models of participation

For comparability over age, we coded participation into the number of team or individual sports, and the number of other cultural/youth activities. Participation was then summed for ages 9 and 11, and 13 and 15 years. Participation at age 18 was coded in the same way as at ages 13 and 15 years. At age 21, sports participation was assessed as an ordinal score from 0 (don't belong) to 3 (involved a great deal). For participation in other groups or activities, ratings of “involved a great deal” and “involved somewhat” were recoded as a score of 1 and a total score obtained by summing over the 10 types of cultural/service groups.

Path analyses were used to examine participation from childhood to late adolescence ([Cohen & Cohen, 1983](#)). Path analysis allows the exploration of predictive models where a distinction is made between exogenous variables (whose variability is determined by causes outside the system) and endogenous variables (whose variability is explained, at least in part, by exogenous variables or other endogenous variables within the system). We hypothesized that socioeconomic disadvantage would constitute the main exogenous variable determining the extent of family orientation toward ARO and ICO. These in turn were hypothesized to predict participation in sports and cultural/youth groups, respectively. While inferring causal relationships in observational studies is problematic, longitudinal data support an inference of causal relationships between earlier and later measures.

Because some of the data were ordinal, the analyses using maximum likelihood modelling were based on the matrix of polychoric and product–moment correlations. The estimated parameters are standardized regression coefficients, usually interpreted as the expected change in an outcome variable given a standard deviation change in a predictor variable. Here, where the variables are ordinal, the regression coefficients may be thought of as analogous to correlation coefficients.

Path analysis allows examination of both direct and indirect effects between variables. So, variable *X* may have a direct effect on variable *Z* and variable *X* may also work through variable *Y* to have an indirect effect on variable *Z*. While the direct effect is estimated by the regression of *Z* on *X*, the indirect effect is estimated by the product of the effects of *X* on *Y* and *Y* on *Z* ([Cohen & Cohen, 1983](#)). That is, indirect effects may be determined as the product of all estimates forming a predictive sequence from one variable to another.

Explanatory models

Multiple regression was used to examine the predictive relationship between participation and self-perceived strengths and attachment to parents, friends and educational institution or workplace. We included in the models the four background measures from childhood, namely family disadvantage, family social support, peer attachment and reading ability. As these factors may well have a later influence on perceived strengths and attachment in their own right, by controlling for them we sought to better describe the predictive significance of participation for these later outcomes.

Results

Patterns of participation from ages 9 to 15 years

Complete data were available for $N = 896$ (462 boys and 434 girls). Table 1 shows the proportion of the sample participating in one or more groups from 9 to 11 and 13 to 15 years. While the results indicated declines in participation from the earlier to later ages, statistical comparisons are somewhat problematic as different informants (parent and child, respectively) provided the data. There were significant sex differences in participation. At age 9–11 years, boys had higher levels of any participation in sports groups than females (83.3% vs. 62.9%, respectively, with Mann–Whitney $U = 81.85$, 1 df, $p < .05$). Boys had lower levels of participation than females in cultural/youth groups (75.1% vs. 82.7%, respectively, Mann–Whitney $U = 17.11$, 1 df, $p < .05$). This same pattern of participation was repeated at ages 13–15 years for both participation in sports groups (boys vs. girls: 68.0% vs. 56.2%, respectively, Mann–Whitney $U = 13.11$, 1 df, $p < .05$) and cultural/youth groups (40.9% vs. 54.1%, Mann–Whitney $U = 21.05$, 1 df, $p < .05$).

Table 2 shows the correlations among the various measures, which by and large were similar for boys and girls. Disadvantage was significantly and inversely correlated with ARO and ICO, indicating that families with higher levels of disadvantage tended to place less emphasis on active-recreational and intellectual-cultural pursuits. Disadvantage was also associated with

Table 1
Participation in sports and cultural/youth groups from ages 9–11 to 13–15 years ($N = 896$)

Number	Sports groups		Cultural/youth groups	
	9–11 years (%)	13–15 years (%)	9–11 years (%)	13–15 years (%)
0	26.6	37.8	21.2	52.7
1	26.1	28.1	23.4	25.3
2	23.0	17.4	24.9	12.7
3	16.7	9.9	15.2	6.3
4+	7.6	6.8	15.3	3.0
1 or more	73.4	62.2	78.8	47.3

Table 2
Intercorrelations among the measures to age 15 years

Variable*	1	2	3	4	5	6	7
1. Disadvantage (3–9 yr)		-.26	-.29	-.18	-.29	-.12	-.09
2. ARO (7–9 yr)	-.25		.49	.34	.25	.19	-.01
3. ICO (7–9 yr)	-.30	.43		.08	.26	.04	.18
4. Sports groups (9–11 yr)	-.08	.27	.14		.12	.39	-.06
5. Cultural/youth groups (9–11 yr)	-.32	.21	.21	.10		.11	.36
6. Sports groups (13–15 yr)	.02	.05	.04	.34	.02		-.04
7. Cultural/youth groups (13–15 yr)	-.23	.06	.21	-.08	.47	.03	

Correlations for boys ($N = 461$) are shown above the diagonal and those for girls ($N = 435$) below.

*Disadvantage, ARO and ICO refer to the level of family socioeconomic disadvantage, active-recreational orientation and intellectual-cultural orientation, respectively. All correlations with $r > .10$, significant, $p < .05$.

lower levels of participation. ARO and ICO in turn were correlated with later participation. To some degree these correlations were higher for the measures of participation at 9–11 years than at 13–15 years. Finally, participation in the two types of groups showed low correlations suggesting that involvement in sports groups was unrelated to involvement in cultural/youth groups.

The absence of marked sex differences in correlations among the variables, and examination of separate path models suggested no substantial differences between males and females. Consequently, path analyses are reported for the total sample. Fig. 1 shows the final model for all statistically significant paths. The Goodness of Fit Index (GFI) was .992 and the adjusted GFI was .974 indicating that the model fitted the data well. As hypothesized, disadvantage had a statistically significant inverse effect on both ARO and ICO, as well as a direct inverse effect on participation in cultural/youth groups from ages 9–11 years. ARO initiated a predictive path to participation in sports groups from ages 9–11 with a subsequent path to participation in sports groups from 13 to 15 years. Similarly, ICO had direct predictive effects on both participation in cultural/youth groups from 9 to 11 and 13 to 15 years. Early participation in such groups also predicted later participation. There was a weak but statistically significant inverse path from participation in sports groups at 9–11 to participation in cultural/youth groups at 13–15 years suggesting that early participation in sports groups led to somewhat less later participation in cultural/youth groups.

In terms of indirect effects, disadvantage was associated with both early and later participation in sports groups, operating through ARO. These indirect effects can be estimated by multiplying and adding the regression coefficients along the relevant paths. For early participation, the indirect effect of disadvantage was estimated by $-.26 \times .29$ for the path through ARO or $-.08$, and through the subsequent path to later sports participation by $(-.26 \times .29 \times .39)$ or $-.03$. ARO continued to have an indirect effect on later participation in sports groups operating along the path from earlier participation $(.29 \times .39)$ or $.11$. Disadvantage also had a small indirect effect on participation in cultural/youth groups from 9 to 11 years operating through ICO $(-.05)$ and an effect on participation in such groups from 13 to 15 years operating through two pathways shown in Fig. 1 $(-.05)$. Finally, ICO continued to have an indirect effect on

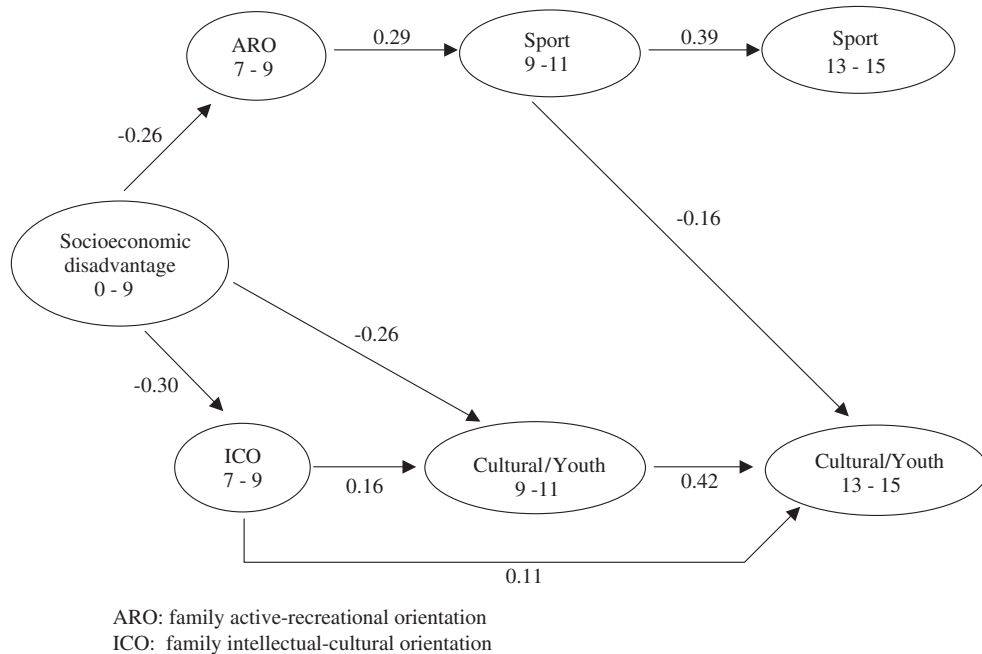


Fig. 1. Path model of participation from 9–11 to 13–15 years (figures shown are standardized regression coefficients).

later participation in cultural/youth groups operating along the path from earlier participation (.07).

Early participation and strengths and attachment at age 15

Table 3 shows the regression models predicting self-reported strengths, and attachment to parents, peers and school at age 15. The regression coefficient (β) for each variable is shown adjusted for the other terms in the model. Initial modelling suggested that after adjusting for other variables, neither ARO nor ICO predicted self-reported strengths or attachment at age 15 years, so they were excluded from the final models. We have only included participation from ages 13–15 years in the models as inclusion of both early and late participation introduced collinearity effects. After controlling for sex, disadvantage, family social support, early peer attachment and reading ability, participation in both sports and cultural/youth groups significantly predicted all four outcome measures at age 15. The effects of participation appeared to be weakest in the case of school attachment.

Perceived strengths in adolescence were also predicted by being male, a supportive family climate in childhood, and early reading ability. Attachment to parents was stronger among adolescents from advantaged backgrounds, from a supportive family climate, and who showed early attachment to peers. Attachment to peers was predicted by being female, a supportive family climate in childhood, early peer attachment and reading ability. Finally, school attachment was predicted by being male and by early reading ability.

Table 3

Regression models showing childhood predictors of strengths and attachment at age 15

Variable	Attachment			
	Strengths	Parent	Peer	School
Sex	.82* (.26, 1.38)	.40 (−.36, 1.16)	−4.06* (−3.30, −4.82)	.11* (.01, .22)
Disadvantage (0–9 yr)	.01 (.29, .30)	−.56* (−.16, −.96)	−.18 (−.57, .22)	−.05 (−.10, .01)
FRI (7–9 yr)	.11* (.03, .19)	.13* (.02, .24)	.12* (.01, .23)	.01 (.00, .03)
Not liked (7–9 yr)	.02 (−.26, .31)	−.69* (−.30, −1.08)	−.51* (−.12, −.90)	−.04 (−.09, .02)
Reading (7–9 yr)	.78* (.43, 1.13)	−.05 (−.52, .42)	.80* (.33, 1.27)	.15* (.08, .21)
Sports groups (13–15 yr)	.40* (.21, .60)	.37* (.11, .63)	.33* (.07, .59)	.08* (.04, .11)
Cultural/youth groups (13–15 yr)	.26* (.02, .50)	.63* (.30, .95)	.52* (.19, .84)	.05* (.01, .10)
Adjusted R^2	.06	.06	.19	.07
$F(7, 800)$	8.67	8.56	28.76	9.79

Values shown are β s and 95% confidence intervals for β in parentheses.

*Indicates β significant with $p < .05$; each β is shown adjusted for other terms in the model.

In examining the effect of sex, girls constitute the reference category.

Patterns of participation from 18 to 21 years

Data were available for $N = 832$ (425 males and 407 females), representing 86.5% of those assessed at age 15. Table 4 shows the proportions in one or more groups at 18 and 21 years and suggests that by age 21 about half the sample were involved in either sports groups and/or cultural/service groups. At age 18, males reported greater levels of participation in sports groups than females (48.0% vs. 39.1%, respectively, Mann–Whitney $U = 6.89$, 1 df, $p < .05$) and lower levels than females in cultural/youth groups (16.7% vs. 27.8%, respectively, Mann–Whitney $U = 8.49$, 1 df, $p < .05$). At age 21, males again reported higher involvement in sports groups (52.7% vs. 39.6%; Mann–Whitney $U = 17.42$, 1 df, $p < .05$) but there was no sex difference in participation in cultural/service groups (50.6% vs. 46.7%; Mann–Whitney $U < 1.00$, 1 df, $p > .05$).

Given the continuity of participation from 9–11 to 13–15 years, we hypothesized that there would also be continuity of participation into late adolescence. Consequently, we examined participation at ages 13–15, 18 and 21 years (see Fig. 2). The GFI was .984 and the adjusted GFI .975 indicating that the model fitted the data well. Overall, the model suggested strong continuity of participation in both types of groups over time, with stronger continuity in sports groups from 18 to 21 years, and in cultural/service groups from 13–15 to 18 years. There was a significant inverse path from participation in cultural/youth groups at age 18 years to sports groups at age 21 years. Further modelling suggested that disadvantage, ARO and ICO had no further significant predictive effects on later participation at 18 and 21 years.

Table 4
Participation in sports and cultural/youth groups from ages 18–21 years (N = 832)

Number	Sports groups		Cultural/youth groups	
	18 years (%)	21 years (%)	18 years (%)	21 years (%)
0	56.3	53.7	77.9	51.3
1	22.0	46.3 ^a	16.8	3.9
2	12.3		4.3	11.6
3	5.8		.9	4.4
4+	3.6		.1	1.8
1 or more	43.7	46.3	22.1	48.7

^aHigh level of involvement in at least one sport group.

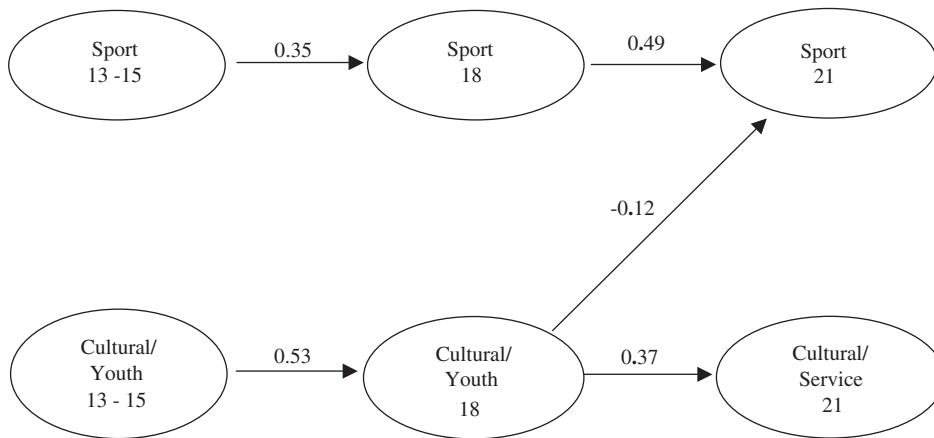


Fig. 2. Path model of participation from 13–15 to age 21 years (figures shown are standardized regression coefficients).

Later participation and strengths and attachment at age 21

Table 5 shows the results of the four regression models predicting self-reported levels of strengths, and attachment to parents, peers and work/education at age 21, respectively. The regression coefficients (β) are shown adjusted for the other terms in the model. Only the models for strengths and attachment to peers at age 21 years showed significant associations with participation. Self-perceived strengths at age 21 were significantly predicted by strengths at age 15, participation in sports groups at ages 18 and 21 years, and cultural/service groups at age 21. Peer attachment at age 21 was predicted by peer attachment at 15 years and earlier participation, although the effects were not clear-cut. Thus, participation in sports groups at age 18 and in cultural/service groups at 21 years predicted stronger attachment to peers while participation in cultural/youth groups at age 18 predicted weaker peer attachment. Later participation was not significantly associated with level of attachment to parents or work/education at age 21 years.

Table 5
Regression models showing predictors of strengths and attachment at age 21

Variable	Attachment (21 yr)			
	Strengths	Parent	Peer	Work/education
Strengths (15 yr)	.37* (.32, .42)			
Parent attachment (15 yr)		.05* (.04, .06)		
Peer attachment (15 yr)			.02* (.01, .03)	
School attachment (15 yr)				.29* (.15, .43)
Sex (reference = females)	.25 (-.18, .67)	-.36* (-.24, -.49)	-.01 (-.14, .11)	-.06 (-.27, .14)
Sports groups (18 yr)	.22* (.03, .41)	.05 (-.01, .10)	.06* (.01, .11)	.07 (-.02, .16)
Cultural/youth groups (18 yr)	-.21 (-.57, .15)	.01 (-.10, .11)	-.11* (-.02, -.21)	.07 (-.11, .24)
Sports groups (21 yr)	.23* (.04, .43)	.03 (-.02, .09)	.05 (-.01, .10)	.09 (-.01, .18)
Cultural/youth groups (21 yr)	.26* (.04, .48)	.04 (-.02, .10)	.07* (.01, .13)	.07 (-.04, .17)
Adjusted R^2	.24	.14	.05	.04
$F(6, 775)$	41.86	22.09	8.54	6.37

Values shown are β s and 95% confidence intervals for β in parentheses.

*Indicates β significant with $p < .05$; each β is shown adjusted for other terms in the model.

Missing values

To examine the possible influence of missing data in the study, we compared those with available data and those with missing data on the measures of disadvantage and ARO and ICO. There were no significant differences on any of these measures in the analyses of participation to 13–15 years. Similarly, there were no significant differences between those with full data and those with missing data in the later set of analyses.

Discussion

The aims of this research were to examine patterns of participation in organized clubs and groups from childhood to adolescence and to identify predictors and outcomes of participation. What then did the findings show? First, levels of participation were relatively high at age 9–11 years with nearly three in every four children participating in at least one organized sport group, and about eight in every 10 children participating in at least one cultural or youth group. Participation declined over time so that by early adolescence about two in every three young

people were participating in sport and less than half in cultural/youth groups. By late adolescence less than half the sample participated in sports groups, and fewer than a quarter participated in cultural/youth groups. Second, there were significant continuities in participation in both sports and cultural/youth/service groups extending over the 12 years of the study. Third, family characteristics acted as drivers of participation. In particular, the children of families characterized by an ARO were more likely to participate in sports groups, while children of families characterized by an ICO were more likely to participate in cultural/youth groups. Early socioeconomic disadvantage, in turn, was negatively related to both these dimensions as well as being directly and inversely related to participation in cultural/youth groups. Disadvantage continued to have indirect effects on participation into adolescence operating through the ARO and ICO dimensions. Fourth, participation in sports and cultural/youth groups was associated with more self-reported strengths and higher levels of attachment to parents, peers and school in adolescence, even after controlling for relevant childhood variables. Furthermore, participation continued to predict self-perceived strengths and to an extent stronger attachment to peers at age 21 years. It needs to be acknowledged that the relative size of these effects was not large in terms of variance explained.

What were the strengths and weaknesses of the study? The longitudinal nature of the data allowed a fuller description of the relationships between earlier and later participation, and between participation and outcomes based upon the temporal ordering of the variables collected. A further strength was the ability to control for other relevant background variables including family characteristics, peer attachment and educational attainment in identifying relationships between earlier participation and later outcomes. Nevertheless, longitudinal studies bring with them their own set of limitations. Missing data are always a problem, although sample retention rates have remained relatively high over the course of the Dunedin study. A comparison of those with and without complete data indicated no significant differences on the measures of disadvantage and ARO and ICO. This provides some confidence that missing values have not introduced a major source of bias into the analyses. Comparisons of participation over time were hampered by differences in informant report and differences in the nature of the assessment, especially at age 21 years. It may be that in the context of the present study, reports of “any participation” provide the best comparable information on change over time. The earlier assessments of participation were based on open-ended questions and relied therefore on informant recall. If anything this is likely to lead to forgetting of particular forms of involvement and consequently an under-estimate of participation. Cued recall as at age 21 years, might have been a preferred way of getting around this problem. However, other research has used similar kinds of open-ended questions to assess participation (Chan & Elder, 2001). The questions about participation also focused on current participation and did not assess the full history of group involvement over the intervening years between assessments. Again this may have the effect of under-estimating participation.

Our findings are consistent with previous research suggesting a decrease in sports participation with increasing age (Pate et al., 2000). To an extent this might also reflect changes in participation in number of sports as some individuals “specialize” in a particular sport. Higher involvement in cultural/service groups was reported at age 21 years but this may reflect a change in the method of assessment. It is also possible that more individuals become involved in particular organizations such as service, union and business groups at the later age, as they have children or enter the paid

work force. For example, Chan and Elder (2001) reported higher levels of participation among a sample of farming adults than amongst their children. At every age, males had higher levels of participation in sports groups than females, while up to age 18 years the reverse was the case for participation in cultural/youth groups. This pattern of sex differences has been reported before, e.g. in New Zealand (Silva, 1987) and the US (Pate et al., 2000).

Our research on continuity of participation confirms and extends previous research (Larson, 1994) suggesting that patterns of participation in extracurricular activities commence at a relatively early age. Group preferences similarly appeared from an early age with participation in sports groups more or less unrelated to participation in cultural/youth groups for both boys and girls. Indeed, participation in sports at the earlier ages suppressed to some degree later participation in cultural/youth groups. It should be recognized that some cultural activities did involve physical activity such as dancing, which was more common among females. There were similar continuities of participation and involvement over adolescence, and the degree of continuity seemed about the same over time. This suggests that children who participate become adolescents who participate and this participation may well continue into adulthood. Once again, participation in sports and cultural/youth groups remained relatively independent and there was some indication that participation in the latter type of group at age 18 years acted to suppress later sports involvement at age 21 years.

Socioeconomic disadvantage emerged as a significant predictor of participation and this association has been reported before although not in New Zealand (e.g. Larson, 1994; Coleman & Hendry, 2000; McHale, Crouter, & Tucker, 2001). This may reflect a greater involvement of children from disadvantaged backgrounds in more unstructured activities such as watching television, “hanging out with friends” and so on. While not necessarily inherently damaging in themselves, these kinds of activities do not provide the opportunities to be gained from more structured, adult-directed and competency-based pursuits. Our findings indicate that the effects of socioeconomic disadvantage reflect both family characteristics relating to the importance of active-recreational and intellectual-cultural pursuits but possibly also direct effects relating to lack of money or other resources, e.g. to pay club fees or obtain the needed equipment. The latter might account for the direct effect of disadvantage on involvement in cultural/youth activities.

There does not seem to be much other research on the role of other parental influences on children’s participation. Janoski and Wilson (1995) found that parent’s level of civic involvement predicted the civic involvement of their children, and Chan and Elder (2001) reported that a child’s involvement in various community activities was higher when both parents were involved in these kinds of activities. Our findings suggest that the family ARO and ICO appear to have their main effects in initiating participation but not sustaining it. Participation in adolescence seems to reflect continuity of involvement from earlier ages.

Overall, our results provide strong support for the idea that participation both widens the “social convoy” (Kahn & Antonucci, 1980) to which children are exposed as well as strengthening relationships within that convoy. By adolescence these effects seem to be far reaching involving perhaps the three most important domains of adolescent life, namely parents, friends and school. Combined with this increased attachment is an increase in self-perceived competencies. This is not to imply that participation is everything and that other childhood factors are not important. The effects of the social convoy in early childhood are also evident in adolescence. For example, family cohesiveness and being liked by other children both have significant continuity with attachment to

family and friends in adolescence (see also Woodward & Fergusson, 2000), and early disadvantage had particular significance for less attachment to parents.

It might be argued that some of these effects reflect the direct health benefits associated with participation in sports and other more active pursuits (Pate et al., 2000). In this regard our earlier cross-sectional study at age 15 years indicated that self-reported competencies were associated with the number of physical leisure time activities rather than absolute amount of time engaged in them (Williams & McGee, 1991). This might suggest that our findings on perceived competence reflect more the social aspects of participation rather than any physical health benefits. Nevertheless, if participation does lead to less illicit drug use, safer sexual activity and so on, this may also lead to less conflict with parents, friends and teachers, thereby promoting stronger attachments to them. Our research is unable to directly identify the mechanisms by which participation enhances attachment and competence. This important question about mechanism of action needs further study.

Previous research has indicated other positive effects that participation may have on adolescent development including reducing delinquency (Larson, 1994), depression (McHale et al., 2001) and school dropout (Mahoney & Cairns, 1997). Nevertheless, it is important not to overstate the potential influence of organized groups and see them as a panacea for all society's ills. Participation may not necessarily protect against other health-compromising behaviours such as smoking and substance use (Skolnick, 1993) and it may promote some (e.g. Sherwood, Neumark-Sztainer, Story, Beuhring, & Resnick, 2002). Larson (1994) has noted also the potential for undue competitiveness to cause harm. That said, our findings provide some indication as to why participation is important and may be protective. Attachment is a core concept in theories about individual development (Waters, Weinfield, & Hamilton, 2000). It is associated with positive mental health in both adolescence (Williams & McGee, 1991; Nada Raja et al., 1992) and early adulthood (Giordano, Cernkovich, Groat, & Pugh, 1998). A model of the effects of participation on well-being might have as a starting point the mediating effect of attachment (see also Larson, 1994; McHale et al., 2001). The implications for health promotion among adolescents seem clear. From a youth development perspective, the support and promotion of a variety of different organized groups in the community is critical. Participation depends as much on the provision of opportunities for young people to be involved, particularly those in economically disadvantaged areas (West, Reeder, Milne, & Poulton, 2002) as on the extent to which society places a value on an ARO and ICO among its members.

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