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Meta-Analyses of Age and Sex Differences in Children's and Adolescents' Prosocial Behavior

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Sample of studies. Several procedures were used to obtain studies used in the meta-analysis. First, we used a computer-based information search of PsycInfo (Psychological Abstracts) from 1974-1994. The key words in the search included altruism, prosocial behavior, helping behavior, sharing, caring, donating, and comforting. We also searched the reference lists in the journal articles, books, and chapters in our sample of studies. Finally, we examined the studies published in recent volumes of developmental journals (i.e., *Developmental Psychology*, *Child Development*, *Merrill-Palmer Quarterly*, *Journal of Adolescent Research*, *Journal of Early Adolescence*, *Applied Developmental Psychology*).

The criteria for including studies in the prosocial analyses were (a) the dependent variable had to meet our definition of prosocial behavior, (b) participants were not sampled from a clinical population (handicapped children, delinquents), (c) participants were children and/or adolescents not over the age of 21, (d) the article was published, (e) the data reported were for individual children rather than data at the dyadic, triadic, or class levels, (f) the index of prosocial behavior was for real rather than pretend or play prosocial behavior, and (g) the article contained results that were sufficient to either calculate an effect size for age differences or reported that the age difference was nonsignificant (without accompanying data; in this case a 0 was given for the effect size). Studies of allocation behavior and studies of competition versus cooperation (e.g., Kagan & Knight, 1979, Knight & Kagan, 1977a,b) were not included for two reasons: (a) these measures vary in terms of the degree to which they can be interpreted as prosocial, and (b) allocation measures differ somewhat in form from all other measures and, due to the number of studies containing such measures, they would overly influence the meta-analysis. The resulting total sample consisted of 155 studies yielding 478 effect sizes (*M* number of effect sizes per study = 2.67, SD = 3.95).[1]

Variables coded from each study. The following data were recorded from each study: (a) sample size for older and younger children (when no specific sizes were reported we assumed equal numbers of older and younger children; *M*s = 38.58 and 39.44, *SD*s = 39.28 and 53.35, respectively), (b) type of index (instrumental helping, sharing/donating, comforting, aggregated index of prosocial behavior), (c) method (observation, self-report, other-report [peers, parents, teachers]), (d) design (correlational/naturalistic, structured/experimental), (e) target of prosocial response (children, adults, unknown/unspecified), (f) mean age of sample (when grade was reported, it was translated into years; *M* age = 7.83 years, *SD* = 3.03), (g) mean age of oldest and youngest children in sample (*M*s = 9.31 and 7.83 years, *SD*s = 3.51 and 2.80, respectively), and (h) year of publication (articles that were currently in press were given a 1995 publication date). These variables were coded by a single rater. A second coder independently coded 44 of the studies in these lists. The two raters agreed on 86% of the codings.

Methods of computation. Initially, the effect size *g* (difference between the means of two groups, divided by the pooled standard deviation) was computed for each variable (using Johnson's [1993] software). The estimator *g* was then corrected for bias and the unbiased effect size *d* was used in the analyses (Hedges & Olkin, 1985). Positive values for d represent higher levels of a prosocial behavior for older than for younger children. Computation of effect size was based on (a) 61 reports of means and standard deviation, (b) 73 reports of correlations, (c) 155 *F* tests,[2] (d) 8 *t* tests, (e) 76 reports of proportions, (f) 28 reports of significance levels, (g) 6 reports of chi square, and (h) 71 cases in which authors reported no significant differences but did not report any data (a *d* of 0 was given in these cases to indicate no difference).

Potential outliers were identified in both samples by computing a schematic box plot and determining which effect sizes were outside of the inner fence (Glass, McGaw, & Smith, 1981). Based on these criteria, 12 effect sizes were eliminated from the sample.[3]

We took two approaches to our analysis of age differences in prosocial behavior. First, we were interested in examining effect sizes as a function of the specific age group comparison. Because some of the studies utilized correlational analyses to examine the relation of the age to prosocial behavior (n = 55), specific comparisons between age-related groups could not be calculated. Thus, for the analysis of prosocial behavior as it relates to specific age comparisons we relied on those studies in which specific age groups were contrasted (n = 125).

Secondly, we were interested in the predictors of the magnitude of effect sizes in age differences in prosocial behavior. In this analysis, we used all available studies. We computed least square weighted univariate regression analyses (in which each individual predictor was examined separately) and multivariate regressions (in which each predictor was examined while simultaneously controlling for the other predictors in the regression equation).

Age group analyses. From the 125 studies in which there were age-related comparisons reported, 378 effect

sizes (excluding outliers) were computed (with an average of 3.02 effect sizes per study). Although there is not a single convention to handle the potential problems of nonindependent effect sizes, we elected to be conservative in our approach. Thus, in the analysis of age differences in prosocial behavior we did the following: (a) within any study, we included only one effect size for each unique combination of samples used in an age group comparison and (b) when more than one effect size within a study was calculated for a specific age group comparison, we randomly selected one of these to include in our sample of effect sizes.

To examine specific age-related changes in children's prosocial behavior, we categorized the children in each specific age comparison into one of the following age groups (based on the mean age of the children in a particular age group): (a) infants (less than 3 years of age), (b) preschool (3-6 years of age), (c) childhood (7-12 years of age), (d) adolescent (13-17 years of age), and (e) young adults (18-21 years of age). Because young adults were included in only four effect size comparisons, we excluded this group from our analyses. Comparisons were made both across and within age groups (e.g., a comparison of 8 and 10-year-olds is labeled a childhood/childhood comparison). Thus, the final sample of effect sizes included 265 effects from the 125 studies (2.12 effect sizes per study; see Table 1). Mean ages of samples broken down by age comparison group are presented in Table 1.

Table 1. Summary of Sample Qualities for Meta-Analyses of Age Differences in Prosocial Behavior.

Variable	Value	
All Effect Sizes in Data Base (n = 478)[a]		
M Unweighted Effect Size	0.37	
95% Confidence Interval (lower/upper)		0.32/0.41
Median Unweighted Effect Size	0.36	
Total Effect Sizes in which Age Groups were Compared (n = 378)[b]		
M Unweighted Effect Size	0.35	
95% Confidence Interval (lower/upper)		0.31/0.40
Median Unweighted Effect Size	0.37	
Effect Sizes Used in Age Group Analyses (n = 265)[c]		
M Unweighted Effect Size	0.38	
95% Confidence Interval (lower/upper)		0.33/0.43
Median Unweighted Effect Size	0.40	
Total Effect Sizes in which Effect Sizes were Calculated from Correlations (n = 88)[d]		
M Unweighted Effect Size	0.23	
95% Confidence Interval (lower/upper)		0.14/0.32
Median Unweighted Effect Size	0.20	
Effect Sizes from Correlational Data Used in Regression Analyses (n = 50)[e]		
M Unweighted Effect Size	0.21	
95% Confidence Interval (lower/upper)		0.11/0.32
Median Unweighted Effect Size	0.20	
Total Effect Sizes Used in Regression Analyses (n = 315)[f]		
M Unweighted Effect Size	0.36	
95% Confidence Interval (lower/upper)		0.31/0.40
Median Unweighted Effect Size	0.36	
Mean Age (and Standard Deviation) of Older/Younger Group by Age Group Comparison for Age Group Analyses		
Infant/Infant	2.00 (.33)/1.40 (.33)	
Preschool/Infant	4.58 (1.12)/2.13 (.57)	
Preschool/Preschool	5.59 (.89)/3.90 (.77)	
Childhood/Preschool	9.03 (1.72)/5.43 (.62)	
Childhood/Childhood	10.40 (1.30)/7.59 (1.13)	
Adolescent/Preschool	12.50 (.63)/5.67 (.41)	
Adolescent/Childhood	13.36 (1.64)/9.04 (1.73)	
Adolescent/Adolescent	15.71 (.63)/12.98 (.67)	

Note. Effect sizes are positive for differences favoring older children. [a] Total number of effect sizes across and within all studies used. [b]Total number of effect sizes calculated from studies that presented comparisons of children of specific ages (excluding outliers). [c]Only those effect sizes calculated from data comparison children of specific ages with only one effect size per study (excluding studies that included young adults and excluding the outliers). [d]Total number of effect sizes from studies in which a correlation between age and prosocial behavior was calculated (excluding outliers). [e]Only those effect sizes calculated from correlational data with only one effect size per study (excluding outliers). [f]Effect sizes of data set “C” combined with those from data set “D”.

Table 1 also includes a descriptive summary of the data sets for the meta-analysis of age differences in prosocial behavior. Overall mean unweighted positive effect sizes were obtained, indicating a difference favoring older children.

Table 2 presents the overall effect size for the entire sample and the effect sizes broken down for each age group, as well as each categorical coding classification broken down by age group. These effect sizes are weighted by the reciprocal of its variance (*d*+; see Hedges & Olkin, 1985). Because we only used published studies, we computed a Fail Safe *N* (Cooper, 1979) to determine the number of additional studies that would be needed to reverse a conclusion that a significant relationship exists at least at the $p < .001$ (two-tailed) level. Based on these calculations, it would take 8,363 additional studies with effect sizes of 0 (or totaling 0) to change our significance from $p < 001$ for the overall effect size of age differences in prosocial behavior.

Although we can be confident that the overall age difference differed from 0.0 (the value indicating exactly no sex difference), the significant homogeneity statistic (*Q*) indicated that the effect sizes in this sample were not consistent across studies (see Table 2). Our next step was
to disaggregate the effect sizes.

Table 2. Tests of Categorical Models for Age Differences in Prosocial Behavior Effect Sizes

Variables and Class	Between-Class effect (Q_B)	*n*	Weighted effect size (*d*+)	95% CI for *d*+ (lower/upper)	Homogeneity (Q)[a]
Overall		265	0.26****	0.23/0.29	749.56****
Age Group Comparison	63.20****				
Infant/Infant		10	0.26*	0.06/0.45	7.62
Preschool/Infant		11	0.15[a]	-0.01/0.30	13.36
Preschool/Preschool		30	0.24[b]****	0.13/0.35	31.54
Childhood/Preschool		75	0.33[c]*****	0.28/0.39	189.94****
Childhood/Childhood		85	0.30[d,h,i]****	0.26/0.35	199.76****
Adolescent/Preschool		6	0.68[a,b,e,f,h]****	0.48/0.87	7.62
Adolescent/Childhood		37	0.13[e,g,i]****	0.06/0.19	199.12****
Adolescent/Adolescent		11	0.06[c,d,f]	-0.03/0.16	34.41****
Type of Prosocial Behavior (by age group)					
Infant/Infant	1.98				
Instrumental Help		4	0.34*	0.03/0.64	1.50
Comforting		0			
Sharing/Donating		3	0.06	-0.27/0.40	1.44
Aggregated Index		3	0.38*	0.01/0.75	2.70
Preschool/Infant	1.11				
Instrumental Help		2	0.21	-0.35/0.51	0.85
Comforting		1	0.00	-0.60/0.60	0.00
Sharing/Donating		2	0.27	-0.07/0.61	2.41
Aggregated Index		6	0.09	-0.12/0.31	9.05
Preschool/Preschool	2.09				
Instrumental Help		3	0.08	-0.35/0.51	0.85
Comforting		2	0.53*	0.05/1.01	1.01
Sharing/Donating		10	0.26**	0.07/0.45	10.26
Aggregated Index		15	0.22**	0.07/0.36	17.32
Childhood/Preschool	30.42****				
Instrumental Help		16	0.64[a,b,c] ****	0.50/0.79	34.60***
Comforting		9	0.28[a] ***	0.09/0.47	9.06
Sharing/Donating		41	0.36[b,d] ****	0.28/0.43	97.88****
Aggregated Index		9	0.16[c,d] ***	0.06/0.26	17.98*
Chidren/Childhood	16.42****				
Instrumental Help		17	0.40[a] ****	0.29/0.52	21.52
Comforting		6	0.18*	0.07/0.30	15.96*
Sharing/Donating		59	0.34[b] ****	0.28/0.40	139.86****
Aggregated Index		3	0.09[a,b]	-0.07/0.24	6.00
Adolescent/Preschool	2.62				
Instrumental Help		1	1.39****	0.42/2.37	0.00
Comforting		2	0.54***	0.16/0.91	0.09
Sharing/Donating		3	0.69****	0.46/0.92	4.98
Aggregated Index		0			
Adolescent/Childhood	33.41****				
Instrumental Help		22	0.02[a]	-0.06/0.11	105.79****
Comforting		2	0.33	-0.06/0.72	0.75
Sharing/Donating		7	0.65[a,b] ****	0.45/0.85	6.48
Aggregated Index		6	0.13[b]	-0.02/0.27	53.43****
Adolescent/Adolescent	2.57				
Instrumental Help		9	-0.01	-0.14/0.12	31.61****
Comforting		0			
Sharing/Donating		2	0.14*	0.01/0.27	0.22
Aggregated Index		0			
Method (by age group)					
Infant/Infant	.97				
Observation		8	0.21*	0.01/0.43	4.79
Self-Report		0			
Other-Report		2	0.47*	0.01/0.92	1.84
Preschool/Infant	All codings were from observational studies.				
Preschool/Preschool	.04				

Observation		28	0.23****	0.12/0.35	31.39
Self-Report		2	0.28	-0.09/0.65	0.09
Other-Report		0			
Childhood/Preschool	27.41****				
Observation		64	0.41$^{a\ ****}$	0.34/0.47	153.64***
Self-Report		5	0.45$^{b\ ****}$	0.25/0.65	2.52
Other-Report		6	0.08^{a,b}	-0.03/0.19	6.38
Childhood/Childhood	11.04***				
Observation		71	0.34$^{a\ ****}$	0.29/0.40	149.10***
Self-Report		12	0.25****	0.16/0.35	36.27****
Other-Report		2	0.06^{a}	-0.10/0.23	3.36
Adolescent/Preschool	.65				
Observation		5	0.71****	0.50/0.92	6.97
Self-Report		1	0.49****	-0.01/0.99	0.00
Other-Report		0			
Adolescent/Childhood	11.65***				
Observation		26	0.18$^{a\ ****}$	0.10/0.27	159.37****
Self-Report		6	-0.06^{a,b}	-0.19/0.07	17.48*
Other-Report		6	0.26$^{b\ **}$	0.06/0.46	10.62
Adolescent/Adolescent	.05				
Observation		7	0.08	-0.08/0.24	12.79^{+}
Self-Report		4	0.06	-0.06/0.16	21.56****
Other-Report		0			
Design (by age group)					
Infant/Infant	1.60				
Naturalistic/Correlational		6	0.16	-0.09/0.41	5.21
Experimental/Structured		4	0.41**	0.11/0.71	0.80
Preschool/Infant	All effect sizes were from naturalistic/correlational studies.				
Preschool/Preschool	1.74				
Naturalistic/Correlational		20	0.19***	0.06/0.32	21.36
Experimental/Structured		10	0.35****	0.15/0.55	8.43
Childhood/Preschool	24.06****				
Naturalistic/Correlational		13	0.12$^{a\ *}$	0.02/0.22	18.42
Experimental/Structured		62	0.42$^{a\ ****}$	0.35/0.48	147.46****
Childhood/Childhood	17.03***				
Naturalistic/Correlational		9	0.13$^{a\ **}$	0.04/0.22	20.98*
Experimental/Structured		76	0.36$^{a\ ****}$	0.30/0.41	161.76****
Adolescent/Preschool	All effect sizes were from structured/experimental studies.				
Adolescent/Childhood	8.07***				
Naturalistic/Correlational		9	0.00^{a}	-0.11/0.11	24.14***
Experimental/Structured		28	0.20$^{a\ ****}$	0.12/0.28	166.91****
Adolescent/Adolescent	6.09**				
Naturalistic/Correlational		8	-0.07^{a}	-0.21/0.07	27.28****
Experimental/Structured		3	0.17$^{a\ **}$	0.04/0.29	1.03
Target (by age group)					
Infant/Infant	5.21				
Child		2	-0.02	-0.37/0.60	0.10
Adult		7	0.33**	0.07/0.64	2.39
Unknown/Unspecified		1	0.68**	0.13/1.23	0.00
Preschool/Infant	1.17				
Child		9	0.19*	0.02/0.37	5.19
Adult		1	-0.03	-0.44/0.39	0.00
Unknown/Unspecified		1	0.00	-0.59/0.59	0.00
Preschool/Preschool	0.06				
Child		28	0.23****	0.12/0.35	31.40
Adult		0			
Unknown/Unspecified		2	0.28	-0.08/0.65	0.08
Childhood/Preschool	36.75****				
Child		61	0.39$^{a,b\ ****}$	0.33/0.46	173.18****
Adult		2	1.16$^{a,c\ ****}$	0.76/1.56	0.44
Unknown/Unspecified		12	0.12$^{b,c\ *}$	0.01/0.22	11.26
Childhood/Childhood	13.93****				
Child		76	0.33$^{a\ ****}$	0.28/0.38	145.12****
Adult		3	0.67$^{b\ ****}$	0.34/1.00	1.40
Unknown/Unspecified		6	0.13$^{a,b\ *}$	0.02/0.25	6.71
Adolescent/Preschool	7.89				
Child		5	0.69****	0.48/0.89	7.54
Adult		0			
Unknown/Unspecified		1	0.60****	0.03/1.17	0.00
Adolescent/Childhood	.98				
Child		26	0.12***	0.04/0.20	129.64****
Adult		2	0.31	-0.06/0.68	8.77
Unknown/Unspecified		9	0.12***	0.01/0.24	59.72****
Adolescent/Adolescent	10.71****				
Child		5	0.18$^{a\ ***}$	0.06/0.29	1.92
Adult		6	-0.14^{a}	-0.31/0.07	21.78***
Unknown/Unspecified		0			

Note. Effect sizes are positive for differences favoring older children. CI = Confidence Interval. ^{a}Significance indicates rejection of the hypothesis of homogeneity. Age Classifications: Infants = less than 3 years of age; Preschool = 3 - 6 years of age; Childhood = 7 - 12 years of age; Adolescent = 13 - 17 years of age. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .005$, $^{****}p < .001$. Within each coding category for each age comparison grouping, effect sizes with similar alphabetic superscripts are significantly different (post hoc contrasts), *p*s at least < .05.

Table 2 includes tests of univariate categorical models (analogous to main effects in an analysis of variance), tests of the significance of between-class effects (Q_B), tests of the homogeneity of the effect sizes within each class (Q_W), the mean weighted effect size for each categorical variable, and the 95% confidence interval. Because the between-class test was significant for age comparison group (see Table 2), post-hoc comparisons among the mean effects sizes for the different age comparison groups were computed. All age group comparisons resulted in positive weighted effect sizes (indicating that the older age group evidenced greater prosocial behavior). Further, all comparison effect sizes were significant (*p*s at least < .05) except for those in the preschool/infant and adolescent/ adolescent age groups. The greatest effect size was found in comparisons of adolescents/preschoolers, with moderate effects sizes found for comparisons of infant/infant ,childhood/preschool,and childhood/childhood groups, and small effect sizes found for preschool/infant, adolescent/ childhood,and adolescent/adolescent comparisons.

We next examined how age differences in prosocial behavior varied as a function of study qualities. Data for the study quality variables broken down by appropriate age groups are presented in Table 2. Variation in the magnitude of age differences in prosocial behavior as a function of the type of prosocial behavior was not significant for the three youngest age group comparisons. Across the remaining age group comparisons, the magnitudes of age differences were relatively constant in size when the type of prosocial behavior was aggregated, sharing, or comforting. In contrast, the magnitude of effect sizes in instrumental helping varied more across these age groups. The magnitudes of effect sizes were relatively high when the type of prosocial behavior was instrumental help for childhood/preschool and childhood/childhood comparisons and relatively low for the adolescent/childhood and adolescent/adolescent comparisons.

The magnitude of the effect size differed significantly by the method of collection (e.g., observation, self-report, other-report) only for childhood/ preschool, childhood/ childhood, and adolescent/childhood comparison groups (note that effect sizes could not be contrasted for the preschool/infant comparison group because all effect sizes were from observational studies). Specifically, for both the childhood/preschool and childhood/childhood age groups, effect sizes for age differences were significantly higher when measured by observation or self-report than when measured by reports obtained from others (e.g., parents, peers, and/or teachers). For the adolescent/childhood comparisons, effect sizes were significantly smaller when measured by self-report methods than by observational or other-report methods (see Table 2).

A very consistent pattern of findings was obtained when the effect sizes were broken down by the type of design (effect sizes could not be contrasted for preschool/infant and adolescent/preschool comparison groups because all effect sizes were from naturalistic/ correlational studies or structured/experimental studies, respectively) Across all remaining age comparison groups, effect sizes were greater in experimental/structured designs than in naturalistic/correlational designs.

Finally, the magnitude of the effect size differed significantly by the target of the prosocial behavior, but this was true only for childhood/preschool, childhood/ hildhood, and adolescent/adolescent groups. In the first two age comparison groups, effect sizes were larger when the target was an adult and lowest when the target was unknown/unspecified (with child targets in-between). In contrast, for the adolescent/adolescent comparison, the effect size was greater when the target was a child in comparison to an adult.

There also were age-related differences in study characteristics. For example, instrumental help was relatively unlikely to be used as a measure of prosocial behavior for children under 7 years of age. Moreover, naturalistic/correlational designs were relatively likely to be used with younger children whereas experimental/ tructured designs were likely to be used with older children. Additionally, adults were likely to be used as targets of children's prosocial behavior at the youngest and oldest age group comparisons whereas children were likely to targets for groups not at the extremes (see Table 2). Thus, age-related differences in prosocial behavior may be a function of differences in study characteristics that vary with the age of the sample. Our next step was to examine this possibility.

Regression analyses. To examine the prediction of age differences in prosocial behavior while controlling for study qualities, we computed multivariate least squares weighted regression analyses (see Table 3). For comparative purposes, we also computed univariate weighted regression analyses (when a predictor was examined in relation to effect size without controlling for other study qualities).

The sample of studies in these analyses is the larger sample that includes studies that compared specific age groups and studies that used correlational analyses ($\underline{n}$ = 315). In these analysis, we used a weighted regression procedure (each effect size was weighted by the inverse of its variance) and included the five continuous predictors (mean age of sample, age of youngest in sample, age of oldest in sample, sample size, and year of publication) and u - 1 contrasts (where u is the number of predictors in a category) for each categorical variable (the categorical predictors were dummy coded, see Table 3). Thus, one code (e.g., comforting for type of behavior) is not presented in Table 3 (but was used in the contrast).

Table 3. Tests of Models for Age Differences in Prosocial Behavior.

Variable	Univariate Models Beta	Multivariate Model Beta
Continuous Variables		
Mean Age of Sample	-.116***	-.849****
Age of Youngest in Sample	-.150****	-.235*
Age of Oldest in Sample	-.040	.513****
Sample Size	-.240****	-.226****
Year of Publication	-.147****	-.116****
Categorical Variables (Dummy Coded Contrasts)		
Type of Prosocial Behavior		
Instrumental Help[a]	-.047	-.050
Sharing[a]	.192****	-.008
Aggregated Index[a]	-.194****	-.132
Method		
Self-Report[a]	-.042	.127***
Other-Report[a]	-.118****	.158***
Design[b]	-.292****	-.278****
Target of Prosocial Behavior		
Child[a]	.140****	-.071
Adult[a]	-.069*	-.048
Data Type[c]	.085***	.139****
Multiple *R*	.45****	

Note. Models are weighted least squares regressions calculated with weights equal to the reciprocal of the variance for each effect size. Beta = standardized regression coefficient. $n = 315$. $Q_E = 736.04$, $p < .0001$. $Q_R = 185.74$, $p < .0001$. [a]Dummy coded variables reflect contrasts comparing this variable (coded 1) to all other categories (coded 0). [b]Naturalistic/Correlational designs = 1, Structured/Experimental designs = 0. [c]Cross-Section Age Comparisons = 1, Correlations with Age = 0. * $p < .05$, ** $p < .01$, *** $p < .005$, **** $p < .001$.

The univariate tests indicated that four of the continuous variables were significantly related to age differences in prosocial behavior. Effect sizes for age differences were smaller as the mean age of sample increased, as the age of the youngest children in the sample increased, as sample size increased, and in studies published later. For the categorical variables, effect sizes indicative of change with age were larger when the measure of prosocial behavior was sharing and smaller when it was an aggregated index. Additionally, effect sizes were smaller when the data were obtained from other reporters (parents, teachers, peers), when the design of the study was naturalistic/correlational, when the target of the prosocial act was an adult, and when the type of age comparison was correlational rather than specific age group contrasts (see Table 3). Finally, when the target of prosocial behavior was a child or when the type of comparison was a specific age group rather than correlational, effect sizes tended to be larger.

In the multivariate regression analyses, important differences relative to the findings of the univariate analyses sometimes were found. After controlling for study qualities, all four of the continuous variables that were significant in the univariate models remained significant in the multivariate model. In addition, age of oldest children in the sample also was significant; as the age of the oldest children in the sample increased, the magnitude of effect size increased as well (see Table 3).

Although we found significant univariate predictions for sharing and aggregated indexes of prosocial behavior, effect size was not predicted by type of prosocial measure after partialling out other study and sample qualities. In contrast to the univariate analyses, effect sizes were now significantly predicted by self reports (i.e., they were larger when measured by self-reports), but the significant inverse

univariate prediction of effect sizes by other-reports was now a significant positive predictor in the multivariate analysis (a suppression effect which is difficult to interpret, Cohen & Cohen, 1975; see Table 3). Finally, as in the univariate analyses, when the design was naturalistic/ orrelational, or when the data were from correlational analyses, effect sizes were relatively small.

The findings of our meta-analysis suggest that age differences in prosocial behavior are complex: they differed in magnitude as a function of the specific age comparison made, the way in which prosocial behavior was studied, and the type of age-related analysis reported. However, across all studies and study qualities, we found a significant, positive effect size for age differences in prosocial behavior. Thus, our data support the conclusion that as children get older, prosocial behaviors generally are more likely to occur. This pattern was found for all specific age group comparisons, although there was considerable variation in the magnitude of effect sizes across different age group comparison (see Table 2).

Moreover, a potential source of discrepancy across studies is the fact that preschool children's prosocial activity often occurs in the context of dramatic play (e.g., playing the role of a parent). Such prosocial behavior does not involve responses to real needs of others. Because dramatic play declines during the preschool period (Singer, 1973), there may appear to be a drop in prosocial action during this period. For example, Bar-Tal et al. (1982) found that younger children evidenced greater frequencies of total prosocial behavior when pretend and real prosocial actions were combined. However, older children exhibited more real prosocial behavior than did younger children. Because we focused our meta-analysis on real prosocial behavior only, our data would not be influenced by changes in children's tendencies to role-play prosocial behavior in the context of pretend play.

According to the multivariate regression analysis, the magnitude of the age differences increased as the age span between the youngest and oldest children in the samples increased (as age of the youngest decreased and as the age of the oldest increased, effect sizes tended to get larger; see Table 3). We now turn to a discussion of the possible developmental processes that may contribute to these differences.

Processes Potentially Related to Changes with Age in Prosocial Responding

For some theorists, the primary source of the increase in prosocial and altruistic behavior across age is socio-cognitive development (e.g., Burleson, 1994), including attentional processes (attending to the needs of others), (b) evaluative processes (evaluating behaviors and situations in terms of moral standards), and (c) planning processes (Krebs & Van Hesteren, 1994). In our view, these processes include encompass more than purely sociocognitive development, and other aspects of responding (e.g., moral emotions, regulatory capacities) may partially account for age-related changes in prosocial behavior.

As noted by Krebs and Van Hesteren (1994) and Hoffman (1982), attention to the needs of others transforms egoistic affect to other-oriented affect, rendering it increasingly altruistic. Throughout infancy and childhood, children develop an increasingly refined understanding of others' emotional states and cognition processes, and are better able to decode other people's emotional cues (Barnett, Darcie, Holland, & Kobasigawa, 1981; see Eisenberg, Murphy, & Shepard, 1997). As is discussed shortly, such perspective taking and related sociocognitive skills are associated with prosocial responding. Moreover, with age, children are more likely to have the social experience necessary to perceive need in social contexts in which overt cues of distress are ambiguous or subtle (see Pearl, 1985).

Children's abilities to evaluate situational factors and behavioral options also become more complex and probably more accurate with age. For example, children's abilities to evaluate the potential costs and benefits for prosocial behavior become more sophisticated with age (Black, Weinstein, & Tanur, 1980). Younger children appear to weigh costs to the self more than do older children when deciding whether or not to assist others (see Eisenberg, 1986) and are less attuned to the benefits of prosocial behavior (Lourenco, 1990, 1993; Perry, Perry, & Weiss, 1986).

Bar-Tal, Raviv, & Leiser (1980) proposed that children's helping behavior develop in six stages. The first three stages involve helping behaviors that are compliant and in which the child anticipates the gain of material rewards (or the avoidance of punishment). The next two stages involve compliance with social demands and generalized reciprocity. The final stage represents true altruism. Young children are viewed as helping only under certain circumstances, mostly in compliance with external authority.

At these early stages, children evaluate helping primarily in regard to the material and physical costs and benefits. The intermediate stages involve evaluative processes related to shared costs and benefits, and the most advanced stages involve evaluations that focus on the functioning of social systems and psychological integrity (of themselves and others; Krebs & Van Hesteren, 1994).

Bar-Tal and colleagues have found some support for their hypothesized developmental changes in children's motives for helping; older children tend to assist more often than do younger children in contexts in which the effects of compliance and rewards or costs are minimized (Bar-Tal et al., 1980; Raviv, Bar-Tal, & Lewis-Levin, 1980; see Bar-Tal., 1982; Eisenberg, 1986). Although Bar-Tal and colleagues sought to delineate a developmental sequence in prosocial motivation, the data concerning this issue are inconclusive (i.e., it is not clear whether all of their proposed stages actually emerge in the specified order; see Eisenberg, 1986). Moreover, children’s reported motives for their prosocial behavior change in ways that generally are consistent with Bar-Tal's stages. Although even preschoolers sometimes give simple other-oriented and pragmatic reasons for their peer-directed prosocial actions (Eisenberg, Lundy, Shell, & Roth, 1985; Eisenberg, Pasternack, Cameron, & Tryon, 1984; Eisenberg-Berg & Neal, 1979), researchers generally have found a decrease with age in self-oriented, hedonistic reasons for helping and an increase in other-oriented, internalized and altruistic motives and reasons for prosocial behavior (e.g., Bar-Tal & Nissim, 1984; Bar-Tal et al., 1980; Ugurel-Semin, 1952; see Bar-Tal, 1982; Eisenberg, 1986). Findings vary with contextual variables (e.g., if an adult is present; see Eisenberg, 1986) and are not always consistent (Hertz-Lazarowitz, 1983; Boehnke et al., 1989); nonetheless, overall the evidence of developmental change in children's motives for assisting

others is relatively compelling (see Eisenberg, 1986).

Age-related changes in children's evaluative processes (as well as personal goals; see Eisenberg, 1986) also are reflected in children's prosocial moral reasoning (i.e., reasoning about moral dilemmas in which one person's needs or wants conflict with those of others in a context in which the role of authorities, laws, rules, punishment, and formal obligations is minimal). Typically individuals are presented with hypothetical moral conflicts (e.g., about helping an injured child rather than going to a social event) and their reasoning about the conflict is elicited. Based on both cross-sectional and longitudinal research, Eisenberg and her colleagues have identified an age-related sequence of children's prosocial reasoning. Preschool and early elementary school children tend to use primarily hedonistic reasoning or needs-oriented (primitive empathic) prosocial reasoning. Hedonistic reasoning decreases sharply in elementary school and increase slightly in adolescence; needs-oriented reasoning increases until mid-childhood and then levels of in use. In elementary school, children's reasoning begins to reflect concern with others' approval and enhancing interpersonal relationships, as well as the desire to behave in stereotypically "good" ways. However, such reasoning (particularly approval reasoning) appears to decline somewhat in high school. Beginning in late elementary school or thereafter, children begin to express reasoning reflecting abstract principles, internalized affective reactions (e.g., guilt or positive affect about the consequences of one's behavior for others or living up to internalized principles and values) and self-reflective sympathy and perspective taking. Thus, although children and adolescents alike sometimes verbalize immature modes of reasoning, children's moral reasoning becomes more abstract, somewhat less self-oriented, and increasingly based on values, moral principles, and moral emotions with age (Carlo, Eisenberg, & Knight, 1992; Carlo, Koller, Eisenberg, Pacheco, & Loguercio, in press; Eisenberg, 1986; Eisenberg, Carlo, Murphy, & Van Court, 1995; Eisenberg, Miller, Shell, McNalley, & Shea, 1991; Eisenberg-Berg, 1979a). As is discussed later, these age-related changes are linked to prosocial behavior; thus, the processes reflected in children's moral reasoning likely play some role in the age-related increase in quantity and quality of prosocial behavior. However, these processes may include age-related changes in goals and values, as well as in sociocognitive skills required for high level moral reasoning (see Eisenberg, 1986; Staub, 1978, 1992).

Although sociocognitive processes may underlie the development of children's prosocial behaviors, engaging in these processes does not ensure that prosocial actions be enacted. Affective and regulatory developments in childhood also may account for age-related changes in prosocial behavior. Eisenberg and Fabes (1992) proposed a model of social behavior based on individuals' tendencies to react emotionally and to regulate emotional and behavioral reactions. Spontaneous prosocial behavior is viewed as most likely to occur in individuals who are moderately high in emotional reactivity and who are optimally regulated (i.e., moderate use of inhibitory control, flexible coping, etc.).

Although Eisenberg and Fabes (1992) considered these qualities to reflect, in part, temperamental differences in individuals, it is also clear that these qualities change with development. For example, with increasing age, children generally are better able to control emotional and behavioral impulses (Block & Block, 1980; Mischel, Shoda, & Rodriguez, 1989). As such, one would expect older children, relative to younger ones, to be more likely to respond optimally in emotionally evocative situations--that is, to respond sympathetically and with prosocial behavior. Support for the hypothesized relations between children's prosocial tendencies and their behavioral and emotional regulation is discussed later.

Developmental changes in both children's emotion regulation and in their sociocognitive skills (e.g., Hoffman, 1982) would be expected to contribute to developmental changes in prosocial behavior by influencing children's tendencies to respond empathically or sympathetically (see Eisenberg, Fabes, Murphy et al., 1994). Lennon and Eisenberg (1987b), in a review of the literature, found that age differences in empathy varied with the specific index of empathy used. In general, self-report of empathy was positively associated with age in preschool and elementary school years. However, findings were inconsistent with older children and adolescents. Facial/gestural indices appeared to be either inversely related or unrelated to age in the early school years, perhaps due to increases with age in children's ability to mask their emotions. To further examine this issue, Fabes and Eisenberg (1996) conducted a meta-analysis of age differences in empathy in studies since 1983 and found an overall unweighted effect size of .24 (favoring older children). Moreover, Fabes and Eisenberg found that effect sizes varied significantly by method; they were greater for observational and self-report indices than for facial/gestural or other-report measures (p values at least $< .05$). These findings are consistent with the view age-related changes in vicarious emotional responding may contribute to changes with age in prosocial responding, particularly in contexts involving distress.

Developmental changes in children's experience-based competencies also affect their ability to engage in prosocial behavior. Peterson (1983a,b) found that when children were specially trained on relevant tasks, age-related increases in helping evaporated. The data in our meta-analysis also suggest that experience-based developmental competencies may contribute to age-related differences in prosocial behavior. For example, age differences in prosocial behavior were relatively pronounced when the index of prosocial behavior was instrumental helping. Older children may provide more direct, instrumental assistance because they are possess greater physical and social competence than do younger children.

In summary, changes in prosocial behavior are complex and are influenced by a variety of methodological factors. Moreover, the precise developmental mechanisms involved in producing these changes are not yet fully explicated and likely involve cognitive, motivational, social, and physical processes. The next wave of research should include studies devoted to identifying when and how age-related changes in the sociocognitive, emotional, and regulatory capabilities change with age and jointly affect prosocial responding.

Sex Differences in Children's Prosocial Behavior

Based on stereotypic gender roles, females generally are expected and believed to be more responsive, empathic, and prosocial than are males whereas males are expected to be relatively independent and achievement oriented (Broverman, Vogel, Broverman, Clarkson, & Rosenkrantz, 1972; Parsons & Bales, 1955; Spence,

Helmreich, & Stapp, 1974). Further, cross-cultural work has verified that gender differences in prosocial responding are not limited to only a few cultures and may develop with age. For example, Whiting and Edwards (1973) found that helpfulness and support giving generally were greater for girls than boys across six different cultures, although these differences were significant for older but not younger children.

Despite the prevailing view that females are more prosocial than males, the empirical evidence is equivocal (see Moore & Eisenberg, 1984; Radke-Yarrow, Zahn-Waxler, & Chapman, 1983, for reviews). In fact, Eagly and Crowley (1986) conducted a meta-analysis of sex differences in adults' helping behavior and found that men helped *more* than women, particularly in situations involving instrumental and chivalrous assistance. Importantly, sex differences in helping were extremely inconsistent across studies and were successfully predicted by various attributes of the studies. A similar meta-analysis has not been conducted with studies that include children. Thus, we now present such a meta-analysis, followed by a more general review and discussion of relevant literature.

A Meta-Analysis of Sex Differences and Children's Prosocial Behavior

Sample of studies. The same procedures and criteria as those used in the meta-analysis on age differences were used in this meta-analysis. The resulting sample consisted of 259 studies yielding a total of 450 effect sizes (*M* number of effect sizes per study = 1.74, *SD* = 1.32).[4]

Variables coded from each study. The following information was recorded from each study: (a) sample size for female and male subjects (*M*s = 52.03 and 51.98, *SD*s = 61.61 and 59.91, respectively; when sample sizes were not broken down by sex of child we assumed equal numbers of males and females), (b) type of index (instrumental helping, sharing/donating, comforting, aggregated prosocial behavior, being kind/considerate), (c) method (observation of behavior in natural or experimental contexts, self-report, other-report [peers, parents, teachers]), (d) design (correlational/naturalistic, structured/experimental), (e) target of prosocial behavior (children, adults, unknown/unspecified), (f) mean age of sample (*M* age = 7.93 years, *SD* = 3.58, range = 1.2 to 19.5 years), (g) age span of children (age of oldest - age of youngest; *M* = 2.53 years, *SD* = 2.17), and (h) year of publication.

Computation and analysis of effect sizes. Once again, the effect size *g* was computed for each variable and then corrected for bias. The unbiased effect size estimator d was used in the analyses. Positive values for d represent higher levels of a behavior for females than for males. For analysis of prosocial behavior, computation of effect size was based on (a) 64 reports of means and standard deviations, (b) 36 reports of correlations, (c) 72 *F* tests,[5] (d) 19 *t* tests, (e) 19 reports of proportions, (f) 29 reports of significance levels, (g) 14 reports of chi square, and (h) 197 cases where the authors reported no significant differences but did not report any data (a *d* of 0 was given in these cases).

We again elected to be conservative in dealing with nonindependent effect sizes. Thus, in the analysis of sex differences in prosocial behavior we did the following: (a) when more than one effect size was calculated for similar variables we chose to use the median value for this variable and (b) when more than one effect size was presented for different variables from the same study for the same sample we randomly selected one of these.

We also identified potential outliers in both samples by computing a schematic box plot and determining which effect sizes were outside of the inner fence (Glass et al., 1981). Based on these criteria, 12 effect sizes were eliminated from the sample. Thus, final number of effect sizes for the meta-analysis of sex differences in prosocial behavior was 272.[6]

Results. Across all effects, the mean unweighted effect size was positive (indicating a difference favoring females; see Table 4). We now turn to the meta-analytic computations using only the sample of 227 effect sizes (i.e., only one effect size per sample minus outliers).

Table 4. Descriptive Summary of Sex Differences in Prosocial Behavior.

Variable	Value	
All Effect Sizes in Data Base (n = 450)[a]		
M Unweighted Effect Size	0.18	
95% Confidence Interval (lower/upper)		0.14/0.22
Median Unweighted Effect Size	0.00	
Effect Sizes Used in Analyses (n = 272)[b]		
M Unweighted Effect Size	0.18	
95% Confidence Interval (lower/upper)		0.14/0.21
Median Unweighted Effect Size	0.00	

Note. Positive effect sizes indicate larger difference favoring girls. [a] Total number of effect sizes across and within all studies used. [b]Independent effect sizes excluding outliers.

Table 5 includes the overall effect size for all samples in the meta-analysis and the effect sizes broken down by each categorical coding classification. These effect sizes are weighted by the reciprocal of its variance (*d*+) and a Fail Safe *N* (Cooper, 1979) was computed to determine the number of additional studies that would be needed to reverse a conclusion that a significant relation exists at the $p < .001$ (two-tailed) level. For the overall analysis, it would take 3,271 additional studies with effect sizes of 0 (or totaling 0) to change the significance to $p > .001$. Even though it is clear that the overall sex difference presented in Table 5 differed from 0 (the value indicating exactly no sex difference), its meaning can be questioned because the significant homogeneity statistic, *Q*, indicated that the effect sizes in this sample were not consistent across studies. The next step was to disaggregate the effect sizes.

Table 5. Univariate Tests of Categorical Models for Sex Differences in Prosocial Behavior Effect Sizes

Variables and Class	Between-Class effect (Q_B)	*n*	Weighted effect size (*d*+)	95% CI for *d*+ (lower/upper)	Homogeneity (Q_W)[1]
Overall		272	0.20^{****}	0.18/0.22	473.78^{****}
Type of Prosocial Behavior	54.50^{****}				
Instrumental Help		62	$0.14^{a,b}$	0.09/0.20	63.08
Being Kind/Considerate		9	$0.42^{a,d,e}$	0.29/0.54	16.15
Comforting		20	$0.17^{e,f}$	0.09/0.25	36.88^{*}
Sharing/Donating		117	$0.13^{c,d}$	0.10/0.17	146.95^{****}
Aggregated Index		64	$0.31^{b,c,f}$	0.27/0.35	156.22^{****}
Method	50.61^{****}				
Observation		196	$0.13^{a,b}$	0.10/0.16	247.67^{**}
Self-Report		36	0.28^{a}	0.22/0.32	98.20^{****}
Other-Report		40	0.33^{b}	0.27/0.39	95.30^{****}
Design	27.65^{****}				
Correlational/Naturalistic		120	0.26^{a}	0.23/0.29	239.77^{****}
Structured/Experimental		152	0.14^{a}	0.11/0.17	206.35^{***}
Target of Prosocial Behavior	27.26^{****}				
Child		190	$0.15^{a,b}$	0.12/0.18	251.98^{****}
Adult		23	0.28^{a}	0.19/0.38	60.69^{****}
Unknown/Unspecified		59	0.28^{b}	0.24/0.32	133.84^{****}

Note. Effect sizes are positive for differences favoring females. All effect sizes were significantly different from zero, all *p*s < .001. CI = Confidence Interval. Within each category, mean effect sizes with similar alphabetic superscripts are significantly different (posthoc *p*s at least < .05, see text). [1]Significance indicates rejection of the hypothesis of homogeneity. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .005$, $^{****}p < .001$.

Table 5 contains tests of univariate categorical models and includes the mean weighted effect size for each categorical variable and the 95% confidence interval. Because the between-class tests were significant for each categorical variable, post-hoc comparisons among the mean effect sizes for the classes of variables within each category were computed. For type of prosocial behavior studied, the sex difference was more significant for aggregated indexes or indexes reflecting kindness/considerateness than for indexes reflecting instrumental help, comforting, or sharing. Moreover, sex differences were significantly greater when prosocial responding was measured with self-reports or reports from others than with observational methods. The magnitude of the sex difference was greater in correlational/naturalistic studies than in structured/experimental studies. Finally, sex differences in prosocial behavior were significantly greater when the target was an adult or was unspecified than when the target was another child (see Table 5).

Univariate and multivariate tests of continuous models for sex differences in prosocial behavior also were conducted (i.e., least squares weighted regressions). Tests of individual predictors were corrected using Johnson's (1993) software.

As presented in Table 6, according to univariate tests, all four of the continuous variables (mean age of sample, age span of sample, year of publication, and sample size) were significantly related to sex differences in prosocial behavior. Univariate effect sizes were larger with older samples and larger samples, and in studies published more recently. As the age span of the sample increased, effect sizes tended to be smaller.

For the categorical variables, univariate analyses revealed that effect sizes were significantly greater for aggregated indexes, other- and self-indexes, and when assessed in naturalistic designs. Sex differences in prosocial behavior tended to be smaller when the index of

prosocial behavior was sharing/donating and when the target was a child (see Table 6).

Table 6. Univariate and Multivariate Tests of Sex Differences in Prosocial Behavior.

Variable	Univariate Models Beta	Multivariate Model Beta
Continuous Variables		
Mean Age	.104*	-.011
Age Span	-.178****	-.123**
Year of Publication	.213****	.093
Sample Size	.221****	1.288**
Categorical Variables (Dummy Coded Contrasts)		
Type of Prosocial Behavior		
Instrumental Help[a]	-.159****	-.148*
Being Kind[a]	.171****	.129
Sharing[a]	-.222****	- .027
Aggregated Index[a]	.310****	.128
Method		
Other-Report[a]	.237****	.201**
Self-Report[a]	.169****	.148*
Design[b]	.284****	.031
Target of Prosocial Behavior		
Child[a]	-.251****	.087
Adult[a]	.044	.117**
Multiple *R*	.489****	

Note. Models are weighted least squares regressions calculated with weights equal to the reciprocal of the variance for each effect size. Beta = standardized regression coefficient. $n = 272$. $Q_E = 338.35$, $p < .001$. $Q_R = 124.48$, $p < .001$. [a]Dummy coded variables reflect contrasts comparing this variable (coded 1) to all other categories (coded 0). [b]Naturalistic/Correlational designs = 1, Structured/Experimental designs = 0. * $p < .05$, ** $p < .01$, *** $p < .005$, **** $p < .001$.

To examine the simultaneous impact of both the continuous and categorical variables, we utilized a multivariate regression procedure in which the categorical variables were dummy-coded (see Table 6). In this regression, sample size (positively) and age span (negatively), but not mean age of sample or year of publication, continued to be significant predictors of sex differences in prosocial behavior when the other variables were controlled.

As in the meta-analysis for age differences in prosocial behavior, contrasts were computed to compare the categorical dummy-coded variables (with u - 1 contrasts within each category) with other codings in the same category while controlling for all other study variables. When the effects of other study qualities were controlled, the category of instrumental help was significantly less predictive of sex differences in prosocial behavior than were other types of prosocial indexes. Being kind, sharing, and the aggregated index of prosocial behavior did not differ from other types of prosocial behaviors once study characteristic were controlled. Sex differences continued to be greater when measured by self- or other-reports. There was no effect of design once the other study qualities were controlled. Finally, when the targets of the prosocial behavior were children or adults, effect sizes were greater. Child targets no longer predicted effect sizes once other study qualities were controlled (see Table 6).

Although the multivariate model accounted for a significant amount of the variance in the magnitude of effect size for sex differences in prosocial behavior (R^2 = .24), the test of model specification (Q_E) indicated that there was still a significant amount of the variance unexplained (see Table 6). This was due in part to the fact that a zero was entered as the effect size for a large number of studies in which investigators reported only that the sex difference in the prosocial measure was not significant but did not provide specific data. When we repeated the analysis controlling for whether we calculated an effect or not, the amount of variance explained increased to .50.

Discussion

The results of our meta-analysis support Eagly and Crowley's (1986) conclusion that sex differences in adults' prosocial behavior are inconsistent across studies and vary

as a function of the qualities of the studies. In contrast to Eagly and Crowley, our data indicate that *girls* tend to be more prosocial than boys. The homogeneity statistic in our meta-analysis indicated that there was a significant amount of the variance unexplained. We now examine review the literature with an eye toward understanding what factors may account for the unexplained variance.

In our meta-analysis, sex differences in prosocial behavior varied with the type of prosocial behavior. Sex differences (favoring girls) were larger for indexes of kindness/considerateness and for the aggregated indexes than for help or sharing in the univariate analyses. However, when study characteristics were controlled, the sex difference was significantly smaller for instrumental helping than for other measures and only marginally greater for kindness/consideration. Aggregated measures, which were a strong predictor in the univariate analyses, did not differ from other measures of prosocial behavior when study characteristics were controlled. The finding that the sex difference was weakest for instrumental helping is particularly interesting because many of the studies in the adult literature in which males help more assess instrumental helping (Eagly & Crowley, 1986).

Because the kindness/consideration and the aggregated indexes often have been measured with self- or other-reports whereas helping and sharing have tended to be measured with observational procedures, the relatively large sex differences in the former global indexes may be partially a function of methodology. Recall that in the meta-analysis, sex differences were greater for self-report and other-report data than for observational data and that kindness/consideration and aggregated indexes did not differ significantly from other types of prosocial behavior in the degree of sex difference once study characteristics (including whether self-report, other-report, or observational measures were used) were controlled. Berman (1980) noted that sex differences in children's responsiveness to young children were greatest when responsiveness was indexed by self-reports. Generally no sex differences were obtained for studies with physiological indexes whereas mixed results were found in studies with behavioral indexes. Similarly, Eisenberg and Lennon (1983) found that sex differences in empathy favoring females were large for self-report measures whereas no sex differences were evident when the measure of empathy was either physiological or unobtrusive observations of nonverbal reactions to another's emotional state.

Sex differences in self- and other-reported prosocial behavior may reflect people's conceptions of what boys and girls are supposed to be like rather than how they actually behave. Parents emphasize prosocial behaviors and politeness more with their daughters than their sons (Power & Parke, 1986; Power & Shanks, 1989). Moreover, peers, parents, and teachers perceive girls as more prosocial than behavioral or self-reported data indicate is actually the case (Bernzweig, Eisenberg, & Fabes, 1993; Bond & Phillips, 1971; Shigetomi, Hartmann, & Gelfand, 1981). Further, parents even attribute girls' actions to inborn factors significantly more often than boys' actions whereas boys' prosocial actions are more likely to be viewed as due to environmental factors (Gretarsson & Gelfand, 1988). These findings are consistent with the view that girls' reputations for prosocial behavior are greater than the actual sex difference.

Sex differences in the literature may also be due, in part, to biases in measures of prosocial behavior. Zarbatany, Hartmann, Gelfand, and Vinciguerra (1985) argued that measures used to evaluate children's prosocial tendencies include a disproportionate number of sex-biased items favoring girls (items pertaining to feminine activities). They found that masculine items (e.g., helping get a cat out of a tree) elicited endorsements for boys and feminine-related and neutral items elicited endorsements for girls. These data support the notion that the sex differences in prosocial behavior are due in part to the items included on measures of prosocial behavior. Consistent with the masculine role and findings for adults (Eagley & Crowley, 1986), boys often may help as much or more than girls in situations in which there is some risk or need for certain types of instrumental activities.

The conditions under which prosocial action is measured also may influence the degree to which sex differences in prosocial behavior are found. In our univariate meta-analyses, sex differences favoring girls tended to be larger when measured in naturalistic/ correlational contexts than in structured/experimental contexts. Again, this may have to due with the fact that self- or other-reports are likely to be used in correlational designs. The multivariate analysis failed to reveal a significant effect of design once the other study qualities were controlled.

Findings in regard to sex differences in empathy and sympathy, like those for prosocial behavior, vary with the method used to assess empathy-related responding. As mentioned previously, Eisenberg and Lennon (1983; Lennon & Eisenberg, 1987a), in a meta-analytic review, found large differences favoring females for self-report measures of empathy, especially questionnaire indices. No gender differences were found when the measure of empathy was either physiological or unobtrusive observations of nonverbal behavior. In more recent work in which sympathy and personal distress were differentiated, investigators have obtained similar findings, although they occasionally have found weak sex differences in facial reactions (generally favoring females) (see Eisenberg, Martin, & Fabes, 1996; Eisenberg, Fabes, & Miller, et al., 1989). Eisenberg and Lennon suggested that the general pattern of results was due to differences among measures in the degree to which both the intent of the measure was obvious and people could control their responses. Sex differences were greatest when demand characteristics were high (i.e., it was clear what was being assessed) and individuals had conscious control over their responses (i.e., self-report indices were used); gender differences were virtually nonexistent when demand characteristics were subtle and study participants were unlikely to exercise much conscious control over their responding (i.e., physiological indices). Thus, when gender-related stereotypes are activated and people can easily control their responses, they may try to project a socially desirable image to others or to themselves.

Fabes and Eisenberg (1996) conducted a follow-up meta-analysis of empathy data published since Eisenberg and Lennon's (1983) first review and found an overall unweighted effect size (favoring girls) of .34. Relatively large effect sizes were found in self-report studies (significantly larger than in the studies involving other methods) and in studies where the targets of the empathic response were unspecified/unknown individuals. Moreover, sex differences tended to be larger with samples of older children. When sex differences were

examined by method, significant sex differences favoring girls were obtained self-report indexes (weighted effect size of .60, $p < .001$) and observational measures (in which a combination of behavioral and facial reactions usually were used, .29, $p < .001$). No sex differences were obtained for nonverbal (facial and physiological measures). Further, the sex difference in self-reported empathy/sympathy increased with mean age of the sample, beta = .24, $p < .005$. Sex differences in reported empathy may increase as children become more aware of, and perhaps are more likely to internalize in their self-image, sex-role stereotypes and expectations.

Of related interest, whereas there are no sex differences in prosocial moral reasoning with age, in later elementary school and beyond, girls use more of some relatively sophisticated types of prosocial moral reasoning than do boys whereas boys sometimes verbalize more of less mature types of reasoning (Carlo, Eisenberg, & Knight, 1992; Eisenberg, Carlo et al., 1995; Eisenberg, Miller et al., 1991; Eisenberg, Shell et al., 1987). Moreover, in adolescence, femininity is positively related to internalized prosocial moral reasoning (but also related to hedonistic reasoning for males; Carlo et al., in press). At this point in time, it is unclear the degree to which these sex differences, which generally are relatively weak, are due to real differences in moral reasoning or to differences in the ways in which adolescent males and females view themselves and desire to be viewed by others. However, the finding that children's moral reasoning frequently is related to their prosocial behavior is consistent with the view that children's prosocial moral reasoning does not merely reflect children's desire to reason in a socially acceptable manner.

It should also be noted that sex differences in prosocial behavior were smaller as the age span of the sample increased. Thus, it appears that older and younger children vary in the degree in which they may wish to present themselves (or are perceived to present themselves) in stereotypic ways regarding their prosocial behaviors. With increasing age, sex differences tended to get larger, although this effect was eliminated once other study qualities were controlled (see Table 6). Recall also that Eagly and Crowley (1986) found that men were more prosocial than were women. As such, it appears that sex differences in prosocial behavior may be moderated by developmental processes.

In summary, although girls appear to be more prosocial than boys on prosocial behavior, the issue of sex differences in prosocial responding and their origins is far from resolved. At this time it is difficult to discern the degree to which any difference reflects a difference in moral orientation versus other factors (e.g., self-presentation) and if the sex difference emerges with age (although age was related to effect size in the univariate analysis, there was no effect of age when study characteristics were controlled). In the future, there is a need to better assess the developmental trajectory of any sex differences, to investigate the origins of sex differences in prosocial behavior, and to examine factors that account for individual differences in prosocial responding within boys and girls.

Footnotes

[1]A complete list of the studies, codings, and effect sizes is included in Appendix A.

[2]If the *F* statistic was presented as a multifactor analysis of variance, a one-way design was approximated by adding into the error sum of squares all available between-groups sums of squares (except that for age).

[3]Analyses computed with outliers included in the samples resulted in findings that were similar to those presented.

[4] A complete list of the studies, codings, and effect sizes is included in Appendix B.

[5]Once again, if the *F* statistic was presented as a multifactor analysis of variance, a one-way design was approximated by adding into the error sum of squares all available between-groups sums of squares (except that for sex).

[6]As was the case for the meta-analysis for age differences, analyses computed with outliers included in the samples resulted in findings that were similar to those presented.

References for Studies Included in Age Differences in Prosocial Behavior Meta-Analysis
(study ID in parentheses at end of reference)

Abroms, K. I., & Gollin, J. B. (1980). Developmental study of gifted preschool children and measures of psychosocial giftedness. Exceptional Children, 46, 334-341. (303)

Austin, A. M. B., Braeger, T., Schvaneveldt, J. D., Lindauer, S. L. K., Summers, M., Robinson, C., & Armga, C. (1991). A comparison of helping, sharing, comforting, honesty, and civic awareness for children in home care, day care, and preschool. Child & Youth Forum, 20, 183-194. (176)

Bailey, D. B. Jr., McWilliam, R. A., Ware, W. B., & Burchinal, M. A. (1993). Social interactions of toddlers and preschoolers in same-age and mixed-age play groups. Journal of Applied Developmental Psychology, 14, 261-276. (337)

Barnett, M. A., & Bryan, J. H. (1974). Effects of competition with outcome feedback on children's helping behavior. Developmental Psychology, 10, 838-842. (150)

Barnett, M. A., Matthews, K. A., & Corbin, C. B. (1979). The effect of competitive and cooperative instructional sets on children's generosity. Personality and Social Psychology Bulletin, 5, 91-94. (149)

Bar-Tal, D., & Nissim, R. (1984). Helping behaviour and moral judgment among adolescents. British Journal of Developmental Psychology, 2, 329-336. (403)

Bar-Tal, D., Raviv, A., & Leiser, T. (1980). The development of altruistic behavior: Empirical evidence. Developmental Psychology, 16, 516-524. (407)

Berman, P. W., & Goodman, V. (1984). Age and sex differences in children's responses to babies: Effects of adults' caretaking requests and instructions. Child Development, 55, 1071-1077. (198)

Berndt, T. J. (1981). Effects of friendship on prosocial interactions. Child Development, 52, 636-643. (276)

Berndt, T. J. (1981). Age changes and changes over time in prosocial intentions and behavior between friends. Developmental Psychology, 17, 408-416. (277)

Berndt, T. J. (1985). Prosocial behavior between friends in middle childhood and early adolescence. Journal of Early Adolescence, 5, 307-317. (474)

Berndt, T. J., & Das, R. (1987). Effects of popularity and friendship on perceptions of the personality and social behavior of peers. Journal of Early Adolescence, 7, 429-439. (331)

Berndt, T. J., Hawkins, J. A., & Hoyle, S. G. (1986). Changes in friendship during a school year: Effects on children's and adolescents' impressions of friendship and sharing with friends. Child Development, 57, 1284-1297. (31)

Bernzweig, J., Eisenberg, N., & Fabes, R. A. (1993). Children's coping in self- and other-relevant contexts. Journal of Experimental Child Psychology, 55, 208-226. (123)

Bigelow, B. J., Tesson, G., & Lewko, J. H. (1992). The social rules the children use: Close friends, other friends, and "other kids" compared to parents, teachers, and siblings. International Journal of Behavioral Development, 15, 315-335. (340)

Birch, L. L., & Billman, J. (1986). Preschool children's food sharing with friends and acquaintances. Child Development, 57, 387-395. (32)

Bregman, N. J., Lipscomb, T. J., McAllister, H. A., & Mims, M. (1984). Sharing behavior: Effect of denomination value and number. Journal of Genetic Psychology, 144, 133-135. (244)

Bridgeman, D. L. (1983). Benevolent babies: Emergence of the social self. In D. L. Bridgeman (Ed.), The nature of prosocial development (pp. 95-112). New York: Academic Press. (376)

Brody, G. H., Stoneman, Z., & MacKinnon, C. E. (1986). Contributions of maternal child-rearing practices and play contexts to sibling interactions. Journal of Applied Developmental Psychology, 7, 225-236. (141)

Brody, G. H., Stoneman, Z., MacKinnon, C. E., & MacKinnon, R. (1985). Role relationships and behavior between preschool-aged and school-aged sibling pairs. Developmental Psychology, 21, 124-129. (370)

Bryan, J. H., Redfield, J., & Mader, S. (1971). Words and deeds about altruism and the subsequent reinforcement power of the model. Child Development, 42, 1501-1508. (243)

Bryan, J. H., & Walbek, N. H. (1970). Preaching and practicing generosity: Children's actions and reactions. Child Development, 41, 329-353. (144)

Bryant, B. K., & Crockenberg, S. B. (1980). Correlates and dimensions of prosocial behavior: A study of female siblings with their mothers. Child Development, 51, 529-544. (242)

Burleson, B. R. (1982). The development of comforting communication skills in childhood and adolescence. Child Development, 53, 1578-1588. (145)

Burleson, B. R. (1984). Age, social-cognitive development, and the use of comforting strategies. Communication Monographs, 51, 140-153. (373)

Burleson, R. R. (1994). Friendship and similarities in social-cognitive and communication abilities: Social skill bases of interpersonal attraction in childhood. Personal Relationships, 1, 371-389. (466)

Carlo, G., Knight, G. P., Eisenberg, N., & Rotenberg, K. J. (1991). Cognitive processes and prosocial behaviors among children: The role of affective attributions and reconciliations. Developmental Psychology, 27, 456-461. (24)

Cauley, K., & Tyler, B. (1989). The relationship of self-concept to prosocial behavior in children. Early Childhood Research Quarterly, 4, 51-60. (323)

Carlo, G., Koller, S. H., Eisenberg, N., Da Silva, M. S., & Frohlich, C. B. (in press). A cross-national study on the relations among prosocial moral reasoning, gender

role orientations, and prosocial behaviors. Developmental Psychology. (475).

Chambers, J. H., & Ascione, F. R. (1988). The effects of prosocial and aggressive videogames on children's donating and helping. Journal of Genetic Psychology, 148, 499-505. (164)

Chapman, M., Zahn-Waxler, C., Cooperman, G., & Iannotti, R. (1987). Empathy and responsibility in the motivation of children's helping. Developmental Psychology, 23, 140-145. (197)

Cialdini, R. B., Eisenberg, N., Shell, R., & McCreath, H. (1987). Commitments to help by children: Effects on subsequent prosocial self-attributions. British Journal of Social Psychology, 26, 237-245. (167)

Cialdini, R. B., & Kenrick, D. T. (1976). Altruism as hedonism: A social development perspective on the relationship of negative mood state and helping. Journal of Personality and Social Psychology, 34, 907-914. (161)

Collins, W. A., & Getz, S. K. (1976). Children's social responses following modeled reaction to provocation: Prosocial effects of a television drama. Child Development, 47, 488-500. (166)

Cummings, E. M., Pellegrini, D. S., & Notarius, C. I. (1989). Children's responses to angry adult behavior as a function of marital distress and history of interparent hostility. Child Development, 60, 1035-1043. (26)

Cummings, E. M., & Smith, D. (1993). The impact of anger between adults on siblings' emotions and social behavior. Journal of Child Psychology and Psychiatry, 34, 1425-1433. (206)

Cummings, E. M., Zahn-Waxler, C., & Radke-Yarrow, M. (1984). Developmental changes in children's reactions to anger in the home. Journal of Child Psychology and Psychiatry, 25, 63-74. (205)

Curtrona, C. E., & Feshbach, S. (1979). Cognitive and behavioral correlates of children's differential use of social information. Child Development, 50, 1036-1042. (163)

Dekovic, M., & Gerris, J. R. M. (1994). Developmental analysis of social cognitive and behavioral differences between popular and rejected children. Journal of Applied Developmental Psychology, 15, 367-386. (336)

Dembo, M. H., & McAuliffe, T. J. (1987). Effects of perceived ability and grade status on social interaction and influence in cooperative groups. Journal of Educational Psychology, 79, 415-423. (245)

Denham, S. A., & Couchoud, E. A. (1991). Social-emotional predictors of preschoolers' responses to adult negative emotion. Journal of Child Psychology and Psychiatry, 32, 595-608. (460)

Denham, S. A., & Holt, R. W. (1993). Preschoolers' likability as a cause and consequence of their social behavior. Developmental Psychology, 29, 271-275. (174)

Denham, S. A., Zahn-Waxler, C., Cummings, E. M., & Iannotti, R. J. (1991). Social competence in young children's peer relations: Patterns of development and change. Child Psychiatry and Human Development, 22, 29-44. (471)

Dlugokinski, E., & Firestone, I. J. (1973). Congruence among four methods of other-centeredness. Child Development, 44, 304-308. (93)

Dlugokinski, E., & Firestone, I. J. (1974). Other centeredness and susceptibility to charitable appeals: Effects of perceived discipline. Developmental Psychology, 10, 21-28. (90)

Doescher, S. M., & Sugawara, A. I. (1990). Sex role flexibility and prosocial behavior among preschool children. Sex Roles, 22, 111-123. (92)

Dremen, S. B. (1976). Sharing behavior in Israeli schoolchildren: Cognitive and social learning factors. Child Development, 47, 185-194. (383)

Dunn, J., & Munn, P. (1986). Siblings and the development of prosocial behaviour. International Journal of Behavioral Development (251)

Duveen, G., Lloyd, B., & Smith, C. (1988). A note on the effects of age and gender on children's social behaviour. British Journal of Social Psychology, 27, 275-278. (231)

Eberly, M. B., Montemayor, R., & Flannery, D. J. (1993). Variation in adolescent helpfulness towards parents in a family context. Journal of Early Adolescence, 13, 228-244. (334)

Eisenberg, N., Cialdini, R. B., McCreath, H., & Shell, R. (1989). Consistency-based compliance in children: When and why do consistency procedures have immediate effects? International Journal of Behavioral Development, 12, 351-367. (42)

Eisenberg, N., Fabes, R. A., Karbon, M., Murphy, B. C., Carlo, G., & Wosinski, M. (in press). Relations of school children's comforting behavior to empathy-related reactions and shyness. Social Development. (180)

Eisenberg, N., Fabes, R. A., Karbon, M., Murphy, B. C., Wosinski, M., Polazzi, L., Carlo, G., & Juhnke, C. (in press). The relations of children's dispositional prosocial behavior to emotionality, regulation, and social functioning. Child Development. (325)

Eisenberg, N., Fabes, R. A., Miller, P. A., Shell, R., Shea, C., & May-Plumlee, T. (1990). Preschoolers' vicarious emotional responding and their situational and dispositional prosocial behavior. Merrill-Palmer Quarterly, 36, 507-529. (125)

Eisenberg, N., Fabes, R. A., Murphy, B., Maszk, P., Smith, M., & Karbon, M. (in press). The role of emotionality and regulation in children's social functioning: A longitudinal study. Child Development. (122)

Eisenberg, N., & Giallanza, S. (1984). The relation of mode of prosocial behavior and other proprietary behaviors to toy dominance. Child Study Journal, 14, 115-121. (289)

Eisenberg, N., McCreath, H., & Ahn, R. (1988). Vicarious emotional responsiveness and prosocial behavior: Their interrelations in young children. Personality and Social Psychology Bulletin, 14, 298-311. (451)

Eisenberg, N., & Shell, R. (1986). Prosocial moral judgment and behavior in children: The mediating role of

cost. Personality and Social Psychology Bulletin, 12, 426-433. (37)

Eisenberg, N., Shell, R., Pasternack, J., Lennon, R., Beller, R., & Mathy, R. M. (1987). Prosocial development in middle childhood: A longitudinal study. Developmental Psychology, 23, 712-718. (196)

Eisenberg, N., Wolchik, S. A., Goldberg, L., & Engel, I. (1991). Parental values, reinforcement, and young children's prosocial behavior: A longitudinal study. Journal of Genetic Psychology, 153, 19-36. (290)

Eisenberg-Berg, N., & Geisheker, E. (1979). Content of preachings and power of the model/preacher: The effect on children's generosity. Developmental Psychology, 15, 168-175. (293)

Eisenberg-Berg, N., Haake, R., & Bartlett, K. (1981). The effects of possession and ownership on the sharing and proprietary behaviors of preschool children. Merrill-Palmer Quarterly, 27, 61-68. (345)

Eisenberg-Berg, N., Haake, R., Hand, M., & Sadalla, E. (1979). Effects of instructions concerning ownership of a toy on preschoolers' sharing and defensive behaviors. Developmental Psychology, 15, 460-461. (292)

Eisenberg-Berg, N., & Hand, M. (1979). The relationship of preschoolers' reasoning about prosocial moral conflicts to prosocial behavior. Child Development, 50, 356-363. (287)

Eisenberg-Berg, N., Hand, M., & Haake, R. (1981). The relationship of preschool children's habitual use of space to prosocial, antisocial, and social behaviors. Journal of Genetic Psychology, 138, 111-121. (366)

Elliot, R., & Vasta, R. (1970). The modeling of sharing: Effects associated with vicarious reinforcement, symbolization, age and generalization. Journal of Experimental Child Psychology, 10, 8-15. (401)

Fabes, R. A., Eisenberg, N., & Eisenbud, L. (1993). Behavioral and physiological correlates of children's reactions to others in distress. Developmental Psychology, 29, 655-663. (455)

Fabes, R. A., Eisenberg, N., Karbon, M., Troyer, D., & Switzer, G. (1994). The relations of children's emotion regulation to their vicarious emotional responses and comforting behaviors. Child Development, 65, 1678-1693. (25)

Fabes, R. A., Eisenberg, N., & Miller, P. A. (1990). Maternal correlates of children's vicarious emotional responsiveness. Developmental Psychology, 26, 639-648. (23)

Farver, J. A. M., & Branstetter, W. H. (1994). Preschoolers' prosocial responses to their peers' distress. Developmental Psychology, 30, 334-341. (17)

Friedrich, L. K., & Stein, A. H. (1973). Aggressive and prosocial television programs and the natural behavior of preschool children. Monographs of the Society for Research in Child Development (Vol. 38, No. 4). (459)

Froming, W. J., & Allen, L. (1983). Age and generosity reconsidered: Cross-sectional and longitudinal evidence. Child Development, 54, 585-593. (36)

Froming, W. J., Allen, L., & Jensen, R. (1985). Altruism, role-taking, and self-awareness: The acquisition of norms governing altruistic behavior. Child Development, 56, 1223-1228. (395)

Garner, P. W., Jones, D. C., & Palmer, D. J. (1994). Social cognitive correlates of preschool children's sibling caregiving behavior. Developmental Psychology, 30, 905-911. (394)

Gottman, J., Gonso, J., & Rasmussen, B. (1975). Social interaction, social competence, and friendship in children. Child Development, 46, 709-718. (104)

Grant, J. E., Weiner, A., & Rushton, J. P. (1976). Moral judgment and generosity in children. Psychological Reports, 39, 451-454. (246)

Green, F. P., & Schneider, F. W. (1974). Age differences in the behavior of boys on three measures of altruism. Child Development, 45, 248-251. (247)

Grunberg, N. E., Maycock, V. A., & Anthony, B. J. (1985). Material altruism in children. Basic and Applied Social Psychology, 6, 1-11. (250)

Grusec, J. E., Kuczynski, L., Rushton, J. P., & Simutis, Z. M. (1978). Modeling, direct instruction, and attributions: Effects on altruism. Developmental Psychology, 14, 51-57. (45)

Grusec, J. E., & Skubiski, S. L. (1970). Model nurturance, demand characteristics of the modeling experiment, and altruism. Journal of Personality and Social Psychology, 14, 352-359. (51)

Grusec, J. E., & Redler, E. (1980). Attribution, reinforcement, and altruism: A developmental analysis. Developmental Psychology, 16, 525-534. (102)

Hamilton, S. F., & Fenzel, L. M. (1988). The impact of volunteer experience on adolescent social development: Evidence of program effects. Journal of Adolescent Research, 3, 65-80. (360)

Handlon, B. J., & Gross, P. (1959). The development of sharing behavior. Journal of Abnormal and Social Psychology, 59, 425-428. (283)

Harris, L. A. (1967). A study of altruism. Elementary School Journal, 135-141. (358)

Harris, M. B. (1970). Reciprocity and generosity: Some determinants of sharing in children. Child Development, 41, 313-328. (361)

Harris, M. B. (1971). Models, norms, and sharing. Psychological Reports, 29, 147-155. (55)

Hay, D. F. (1979). Cooperative interactions and sharing between very young children and their parents. Developmental Psychology, 15, 647-653. (94)

Hay, D. F., Caplan, M., Castle, J., & Stimson, C. A. (1991). Does sharing become increasingly "rational" in the second year of life? Developmental Psychology, 27, 987-993. (469)

Hertz-Lazarowitz, R. (1983). Prosocial behavior in the classroom. Academic Psychology Bulletin, 5, 319-338. (467)

Hertz-Lazarowitz, R., Shran, S., & Steinberg, R. (1980). Classroom learning style and cooperative behavior of elementary school children. Journal of Educational Psychology, 72, 99-106. (362)

Howard, J. A., & Barnett, M. A. (1981). Arousal of empathy and subsequent generosity in young children. Journal of Genetic Psychology, 138, 307-308. (256)

Howes, C., & Farver, J. (1987). Toddlers' responses to the distress of their peers. Journal of Applied Developmental Psychology, 8, 441-452. (49)

Hull, D., & Reuter, J. (1977). The development of charitable behavior in elementary school children. Journal of Genetic Psychology, 131, 147-153. (52)

Iannotti, R. J. (1978). Effect of role-taking experiences on role taking, empathy, altruism, and aggression. Developmental Psychology, 14, 119-124. (73)

Israel, A. C., & Brown, M. S. (1979). Effects of directiveness of instructions and surveillance on the production and persistence of children's donations. Journal of Experimental Child Psychology, 27, 250-261. (72)

Israel, A. C., & Raskin, P. A. (1979). Directiveness of instructions and modeling: Effect on production and persistence of children's donations. Journal of Genetic Psychology, 135, 269-277. (70)

Israely, Y., & Guttmann, J. (1983). Children's sharing behavior as a function of exposure to puppet show and story models. Journal of Genetic Psychology, 142, 311-312. (69)

Jennings, K. D., Fitch, D., & Suwalsky, J. T. D. (1987). Social cognition and social interaction in three-year-olds: Is social cognition truly social? Child Study Journal, 17, 1-14. (363)

Johnson, D. B. (1982). Altruistic behavior and the development of self in infants. Merrill-Palmer Quarterly, 28, 279-388. (68)

Jones, D. C. (1985). Persuasive appeals and responses to appeals among friends and acquaintances. Child Development, 56, 757-763. (402)

Jones, G. P., & Dembo, M. H. (1989). Age and sex role differences in intimate friendships during childhood and adolescence. Merrill-Palmer Quarterly, 35, 445-462. (209)

Kalliopuska, M. (1991). Study on the empathy and prosocial behaviour of children in three day-care centers. Psychological Reports, 68, 375-378. (260)

Katz, P. A., Katz, I., & Cohen, S. (1978). White children's attitudes towards blacks and the physically handicapped: A developmental study. Journal of Educational Psychology, 58, 20-24. (74)

King, L. M., & Barnett, M. A. (1982). Age and sex differences in preschoolers' helpfulness. Child Study Journal, 12, 143-149. (79)

Knight, G. P., Bohlmeyer, E. M., Schneider, H., & Harris, J. D. (1993). Age differences in temporal monitoring and equal sharing in a fixed-duration sharing task. British Journal of Developmental Psychology, 11, 143-158. (213).

Knight, G. P., Johnson, L. G., Carlo, G., & Eisenberg, N. (1994). A multiplicative model of the dispositional antecedents of a prosocial behavior: Predicting more of the people more of the time. Journal of Personality and Social Psychology, 66, 178-183. (461)

Knudson, K. H. M., & Kagan, S. (1982). Differential development of empathy and prosocial behavior. Journal of Genetic Psychology, 140, 249-251. (235)

Krebs, D., & Sturrup, B. (1982). Role-taking ability and altruistic behavior in elementary school children. Journal of Moral Education, 11, 94-100. (75)

Lamb, M. E. (1978). Interactions between eighteen-month-olds and their preschool-aged siblings. Child Development, 49, 51-59. (253)

Lamb, M. E. (1978). The development of sibling relationships in infancy: A short-term longitudinal study. Child Development, 49, 1189-1196. (252)

LeMare, L., & Krebs, D. (1983). Perspective-taking and style of (pro) social behavior in elementary school children. Academic Psychology Bulletin, 5, 239-298. (379)

Lennon, R., Eisenberg, N., & Carroll, J. (1986). The relation between nonverbal indices of empathy and preschoolers' prosocial behavior. Journal of Applied Developmental Psychology, 3, 219-224. (227)

Levin, I., Bekerman-Greenberg, R. (1980). Moral judgment and moral behavior in sharing: A developmental study. Genetic Psychology Monographs, 101, 215-230. (468)

Liebert, R. M., Fernandez, L. E., & Gill, L. (1969). Effects of a "friendless" model on imitation and prosocial behavior. Psychonomic Science, 16, 81-82. (304)

Lipscomb, T. J., Bregman, N. J., & McAllister, H. A. (1983). The effect of words and actions on American children's prosocial behavior. The Journal of Psychology, 114, 193-198. (65)

Lipscomb, T. J., Larrieu, J. A., McAllister, H. A., & Bregman, N. J. (1982). Modeling and children's generosity: A developmental perspective. Merrill-Palmer Quarterly, 28, 275-282. (64)

Lipscomb, T. J., McAllister, H. A., & Bregman, N. J. (1985). A developmental inquiry into the effects of multiple models on children's generosity. Merrill-Palmer Quarterly, 31, 335-344. (380)

Liss, M. B., Reinhardt, L. C., & Fredriksen, S. (1983). TV heroes: The impact of rhetoric and deeds. Journal of Applied Developmental Psychology, 4, 175-187. (313)

Lourenco, O. M. (1993). Toward a Piagetian explanation of the development of prosocial behaviour in children: The force of negational thinking. British Journal of Developmental Psychology, 11, 91-106. (230)

Lowe, R., & Ritchey, G. (1973). Relation of altruism to age, social class, and ethnic identity. Psychological Reports, 33, 567-572. (258)

Ma, H., & Leung, M. C. (1992). Effects of age, sex, and social relationships on the altruistic behavior of Chinese children. Journal of Genetic Psychology, 153, 293-303. (472)

Marcus, R. F. & Jenny, B. (1977). A naturalistic study of reciprocity in the helping behavior of young children. The Alberta Journal of Educational Psychology, 23, 195-206. (236)

Maruyama, G., Fraser, S. C., & Miller, N. (1982). Personal responsibility and altruism in children. Journal of Personality and Social Psychology, 42, 658-664. (135)

McCoy, C. L., & Masters, J. C. (1985). The development of children's strategies for the social control of emotion. Child Development, 56, 1214-1222. (396)

Midlarsky, E., & Bryan, J. H. (1967). Training charity in children. Journal of Personality and Social Psychology, 5, 408-415. (302)

Midlarsky, E., & Hannah, M. E. (1985). Competence, reticence, and helping by children and adolescents. Developmental Psychology, 21, 534-541. (480)

Miller, P. A., Eisenberg, N., Fabes, R. A., & Shell, R. (in press). The effects of moral reasoning and vicarious emotion on young children's prosocial behavior toward peers and adults. Developmental Psychology. (324)

Morris, W. N., Marshall, H. M., & Miller, R. S. (1973). The effect of vicarious punishment on prosocial behavior in children. Journal of Experimental Child Psychology, 15, 222-236. (254)

Mosbacher, B. J., Gruen, G. E., & Rychlak, J. F. (1987). Incentive value: The overlooked dimension in childhood sharing. Journal of Genetic Psychology, 146, 197-204. (136)

Muller, A. A., & Perlmutter, M. (1985). Preschool children's problem-solving interactions at computers and jigsaw puzzles. Journal of Applied Developmental Psychology, 6, 173-186. (134)

Moore, B. S., Underwood, B., & Rosenhan, D. L. (1973). Developmental Psychology, 8, 99-104. (405)

Mullis, R. L., Smith, D. W., & Vollmers, K. E. (1983). Prosocial behaviors in young children and parental guidance. Child Study Journal, 13, 13-21. (130)

Olejnik, A. B. (1976). The effects of reward-deservedness on children's sharing. Child Development, 47, 380-385. (347)

Pandey, J., Bisht, S., & Rani, S. (1987). Children's donations as a function of age, gender, and resources. Psychological Studies, 32, 9-14. (274)

Payne, F. D. (1980). Children's prosocial conduct in structured situations and as viewed by others: Consistency, convergence, and relationships with person variables. Child Development, 51, 1252-1259. (100)

Peterson, L. (1983). Role of donor competence, donor age, and peer presence on helping in an emergency. Developmental Psychology, 19, 873-880. (95)

Peterson, L. (1983). Influence of age, task competence, and responsibility focus on children's altruism. Developmental Psychology, 19, 141-148. (99)

Peterson, L. (1983). The role of neglected factors in age-related trends in children's altruism. Academic Psychology Bulletin, 5, 273-279. (315)

Post-Kammer, P. (1987). Intrinsic and extrinsic work values and career maturity of 9th- and 11th-grade boys and girls. Journal of Counseling and Development, 65, 420-423. (175)

Radke-Yarrow, M., & Zahn-Waxler, C. (1984). Roots, motives, and patterns in children's prosocial behavior. In E. Staub, D. Bar-Tal, J. Karylowski, & J. Reykowski (Eds.), Development and maintenance of prosocial behavior (pp. 81-99). New York: Plenum. (386)

Radke-Yarrow, M., Zahn-Waxler, C., Barrett, D., Darby, J., King, R., Pickett, M., & Smith, J. (1976). Dimensions and correlates of prosocial behavior in young children. Child Development, 47, 118-125. (85)

Rai, S. N., Bhargva, M., & Rai, B. K. (1989). Effects of age and impulsiveness on altruism. Indian Journal of Current Psychological Research, 4, 121-128. (259)

Rheingold, H. L. (1982). Little children's participation in the work of adults, a nascent prosocial behavior. Child Development, 53, 114-125. (343)

Rheingold, H. L., Hay, D. F., & West, M. J. (1976). Sharing in the second year of life. Child Development, 47, 1148-1158. (87)

Roush, C. L., & Hudson, L. M. (1985). Quantitative versus qualitative dimensions of prosocial development: Age-related contributors to children's donating behavior. Child Study Journal, 15, 157-165. (229)

Rubin, K. H., & Schneider, F. W. (1973). The relationship between moral judgment, egocentrism, and altruistic behavior. Child Development, 44, 661-665. (278)

Rushton, J. P. (1975). Generosity in children: Immediate and long-term effects of modeling, preaching, and moral judgment. Journal of Personality and Social Psychology, 31, 459-466. (82)

Rushton, J. P., & Littlefield, C. (1974). The effects of age, amount of modeling, and a success experience on seven- to eleven-year-old children's generosity. Journal of Moral Education, 9, 55-56. (264)

Rushton, J. P., & Wheelwright, M. (1980). Validation of donating to charity as a measure of children's altruism. Psychological Reports, 47, 803-806. (83)

Rushton, J. P. & Wiener, J. (1975). Altruism and cognitive development in children. British Journal of Developmental Psychology, 14, 341-349. (84)

Sharabany, R., & Hertz-Lazarowitz, R. (1981). Do friends share and communicate more than non-friends? International Journal of Behavioral Development, 4, 45-59. (397)

Sharma, V. (1988). Effect of birthorder, age, and sex on helping behaviour of children. Indian Journal of Psychometry & Education, 19, 91-96. (168)

Sibulkin, A. E. (1983). What's it to them? The value of considerateness to children. In D. L. Bridgeman (Ed.), The nature of prosocial development (pp. 139-162). New York: Academic Press. (375)

Simmons, C. H., & Zumpf, C. (1986). The gifted child: Perceived competence, prosocial moral reasoning, and charitable donations. Journal of Genetic Psychology, 147, 97-105. (312)

Sprafkin, J. N., & Rubinstein, E. A. (1979). Children's television viewing habits and prosocial behavior: A field correlational study. Journal of Broadcasting, 23, 265-276. (112)

Stanhope, L., Bell, R. Q., & Parker-Cohen, N. Y. (1987). Temperament and helping behavior in preschool children. Developmental Psychology, 23, 347-353. (114)

Strayer, J., & Schroeder, M. (1989). Children's helping strategies: Influences of emotion, empathy, and age. In N. Eisenberg (Ed.), Empathy and related responses (pp. 85-105). San Francisco: Jossey-Bass. (232)

Staub, E. (1970). A child in distress: The influence of age and number of witnesses on children's attempts to help. Journal of Personality and Social Psychology, 14, 130-140. (105)

Staub, E., & Noerenberg, H. (1981). Property rights, deservingness, reciprocity, friendship: The transactional character of children's sharing behavior. Journal of Personality and Social Psychology, 37, 271-289. (272)

Stith, M., & Connor, R. (1962). Dependency and helpfulness in young children. Child Development, 33, 15-20. (305)

Strayer, J., & Roberts, W. (1989). Children's empathy and role taking: Child and parental factors, and relations to prosocial behavior. Journal of Applied Developmental Psychology, 10, 227-239. (226)

Strayer, J., & Schroeder, M. (1989). Children's helping strategies: Influences of emotion, empathy, and age. New Direction in Child Development, 44, 85-103. (226)

Stockdale, D. F., Hegland, S. M., & Chiaromonte, T. (1989). Helping behaviors: An observational study of preschool children. Early Childhood Research Quarterly, 4, 533-543. (262)

Szagun, G. (1992). Children's understanding of the feeling experience and causes of sympathy. Journal of Child Psychology and Psychiatry, 33, 1183-1191. (342)

Tabor, C., & Shaffer, D. R. (1981). Effects of age and benefactor, attractiveness of the recipient, and the recipient's need for assistance on prosocial behavior in children's dyads. Social Behavior and Personality, 9, 163-169. (378)

Ugurel-Semin, R. (1952). Moral behavior and moral judgment of children. Child Development, 13, 463-474. (400)

Vitaro, F., Gagnon, C., & Tremblay, R. E. (1990). Predicting stable peer rejection from kindergarten to grade one. Journal of Child Clinical Psychology, 19, 257-264. (333)

Vitaro, F., Gagnon, C., & Tremblay, R. E. (1991). Teachers' and mothers' assessment of children's behaviors from kindergarten to grade two: Stability and change within and across informants. Journal of Psychopathology and Behavioral Assessment, 13, 325-343. (329)

Weidman, C. S., & Strayhorn, J. M. (1992). Relationships between children's prosocial behaviors and choices in story dilemmas. Journal of Psychoeducational Assessment, 10, 330-341. (234)

Weissbrod, C. S. (1980). The impact of warmth and instructions on donations. Child Development, 51, 279-281. (160)

White, G. M., & Burnam, M. A. (1975). Socially cued altruism: Effects of modeling, instructions, and age on public and private donations. Child Development, 46, 559-563. (268)

Whiting, B., & Edwards, C. P. (1973). A cross-cultural analysis of sex differences in the behavior of children aged three through 11. The Journal of Social Psychology, 91, 171-188. (454)

Wills, J. B., Feldman, N. S., & Ruble, D. N. (1977). Children's generosity as influenced by deservedness of reward and type of recipient. Journal of Educational Psychology, 69, 33-35. (159)

Wilson, C. C., Piazza, C. C., & Nagle, R. J. (1990). Investigation of the effect of consistent and inconsistent behavioral example upon children's donation behaviors. Journal of Genetic Psychology, 151, 361-376. (339)

Yinon, Y., Sharon, I., & Malkiman, B. (1983). Age similarity and helping intentions. International Journal of Behavioral Development, 6, 233-240. (257)

Zahn, Waxler, C., Friedman, S. L., & Cummings, E. M. (1983). Children's emotions and behaviors in response to infants' cries. Child Development, 54, 1522-1528. (34)

Zahn-Waxler, C., Radke-Yarrow, M., Wagner, E., & Chapman, M. (1992). Development of concern for others. Developmental Psychology, 28, 128-126. (464)

Zinser, O., Perry, J. S., Edgar, R. M. (1975). Affluence of the recipient, value of donations, and sharing behavior in preschool children. The Journal of Psychology, 89, 301-305. (269)

Zinser, O., Perry, J. S., Bailey, R. C., & Lydiatt, E. W. (1976). Racial recipients, value of donations, and sharing behavior in children. Journal of Genetic Psychology, 129, 29-35. (270)

References for Studies Included in Sex Differences in Prosocial Behavior Meta-Analysis
(study ID in parentheses at end of reference)

Ahammer, I. M., & Murray, J. P. (1979). Kindness in the kindergarten: The relative influence of role playing and prosocial television in facilitating altruism. International Journal of Behavioral Development, 2, 133-157. (146)

Ascione, F. R., & Sanok, R. L. (1982). The role of peer and adult models in facilitating and inhibiting children's prosocial behavior. Genetic Psychology Monographs, 106, 239-259. (152)

Austin, A. M. B., Braeger, T., Schvaneveldt, J. D., Lindauer, S. L. K., Summers, M., Robinson, C., & Armga, C. (1991). A comparison of helping, sharing, comforting, honesty, and civic awareness for children in home care, day care, and preschool. Child & Youth Forum, 20, 183-194. (176)

Barnett, M. A., Howard, J. A., King, L. M., & Dino, G. A. (1981). Helping behavior and the transfer of empathy. Journal of Social Psychology, 115, 125-132. (179)

Barnett, M. A., Howard, J. A., Melton, E. M., & Dino, G. A. (1982). Effect of inducing sadness about self or other on helping behavior in high- and low-empathic children. Child Development, 53, 920-923. (33)

Barnett, M. A., Matthews, K. A., & Corbin, C. B. (1979). The effect of competitive and cooperative instructional sets on children's generosity. Personality and Social Psychology Bulletin, 5, 91-94. (149)

Barnett, M. A., & Thompson, S. (1985). The role of perspective taking and empathy in children's Machiavellianism, prosocial behavior, and motive for helping. Journal of Genetic Psychology, 146, 295-305. (185)

Bar-Tal, D., Korenfeld, D., & Raviv, A. (1985). Relationships between the development of helping behavior and the development of cognition, social perspective, and moral judgment. Genetic, Social, and General Psychology Monographs, 111, 23-40. (404)

Bar-Tal, D., & Nissim, R. (1984). Helping behaviour and moral judgment among adolescents. British Journal of Developmental Psychology, 2, 329-336. (403)

Bar-Tal, D., Raviv, A., & Goldberg, M. (1982). Helping behavior among preschool children: An observational study. Child Development, 53, 396-402. (40)

Bar-Tal, D., Raviv, A., & Leiser, T. (1980). The development of altruistic behavior: Empirical evidence. Developmental Psychology, 16, 516-524. (407)

Barton, E. J., & Ascione, F. R. (1979). Sharing in preschool children: Facilitation, stimulus generalization, response generalization, and maintenance. Journal of Applied Behavior Analysis, 12, 417-430. (301)

Barrett, D. E., & Radke-Yarrow, M. (1977). Prosocial behavior, social inferential ability, and assertiveness in children. Child Development, 48, 475-481. (240)

Bengtsson, H., & Johnson, L. (1992). Perspective taking, empathy, and prosocial behavior in late childhood. Child Study Journal, 22, 11-22. (171)

Berman, P. W., & Goodman, V. (1984). Age and sex differences in children's responses to babies: Effects of adults' caretaking requests and instructions. Child Development, 55, 1071-1077. (198)

Berman, P. W., Smith, V. L., & Goodman, V. (1983). Development of sex differences in response to an infant and to the caretaker role. Journal of Genetic Psychology, 143, 283-284. (352)

Berndt, T. J. (1981). Effects of friendship on prosocial interactions. Child Development, 52, 636-643. (276)

Berndt, T. J. (1981). Age changes and changes over time in prosocial intentions and behavior between friends. Developmental Psychology, 17, 408-416. (277)

Berndt, T. J. (1985). Prosocial behavior between friends in middle childhood and early adolescence. Journal of Early Adolescence, 5, 307-317. (474)

Berndt, T. J., & Das, R. (1987). Effects of popularity and friendship on perceptions of the personality and social behavior of peers. Journal of Early Adolescence, 7, 429-439. (331)

Berndt, T. J., Hawkins, J. A., & Hoyle, S. G. (1986). Changes in friendship during a school year: Effects on children's and adolescents' impressions of friendship and sharing with friends. Child Development, 57, 1284-1297. (31)

Berndt, T. J., & Perry, T. B. (1986). Children's perceptions of friendships as supportive relationships. Developmental Psychology, 22, 640-648. (456)

Bernzweig, J., Eisenberg, N., & Fabes, R. A. (1993). Children's coping in self- and other-relevant contexts. Journal of Experimental Child Psychology, 55, 208-226. (123)

Bigelow, B. J., Tesson, G., & Lewko, J. H. (1992). The social rules the children use: Close friends, other friends, and "other kids" compared to parents, teachers, and siblings. International Journal of Behavioral Development, 15, 315-335. (340)

Birch, L. L., & Billman, J. (1986). Preschool children's food sharing with friends and acquaintances. Child Development, 57, 387-395. (32)

Bizman, A., Yinon, Y., Mivtzari, E., & Shavit, R. (1978). Effects of age structure of the kindergarten on altruistic behavior. Journal of School Psychology, 16, 154-160. (450)

Blackmon, A. A., & Dembo, M. H. (1984). Prosocial behaviors in a mainstreamed preschool. Child Study Journal, 14, 205-215. (384)

Blakemore, J. E. O. (1990). Children's nurturant interactions with their infant siblings: An explore of gender differences and maternal socialization. Sex Roles, 22, 43-57. (372)

Bond, N. D., & Phillips, B. N. (1971). Personality traits associated with altruistic behavior of children. Journal of School Psychology, 9, 24-34. (151)

Brehm, S. S., Powell, L. K., & Coke, J. (1984). The effects of empathic instructions upon donating behavior: Sex differences in young children. Sex Roles, 10, 405-416. (178)

Bridgeman, D. L. (1983). Benevolent babies: Emergence of the social self. In D. L. Bridgeman (Ed.), The nature of prosocial development (pp. 95-112). New York: Academic Press. (376)

Brody, G. H., Stoneman, Z., & MacKinnon, C. E. (1986). Contributions of maternal child-rearing practices and play contexts to sibling interactions. Journal of Applied Developmental Psychology, 7, 225-236. (141)

Brody, G. H., Stoneman, Z., MacKinnon, C. E., & MacKinnon, R. (1985). Role relationships and behavior between preschool-aged and school-aged sibling pairs. Developmental Psychology, 21, 124-129. (370)

Bryan, J. H., Redfield, J., & Mader, S. (1971). Words and deeds about altruism and the subsequent reinforcement power of the model. Child Development, 42, 1501-1508. (243)

Bryan, J. H., & Walbek, N. H. (1970). Preaching and practicing generosity: Children's actions and reactions. Child Development, 41, 329-353. (144)

Bryant, B. K., & Hansen, B. K. (1979). The interpersonal context of success: Differing consequences of independent and dependent success on sharing behavior among boys and girls. Representative Research in Social Psychology, 9, 103-133. (148)

Buhrmester, D., Goldfarb, J., & Cantrell, D. (1992). Self-presentation when sharing with friends and nonfriends. Journal of Early Adolescence, 112, 61-79. (143)

Burleson, B. R. (1982). The development of comforting communication skills in childhood and adolescence. Child Development, 53, 1578-1588. (145)

Burleson, B. R. (1984). Age, social-cognitive development, and the use of comforting strategies. Communication Monographs, 51, 140-153. (373)

Call, K. T., Mortimer, J. T., & Shanahan, M. J. (1995). Helpfulness and the development of competence in adolescence. Child Development, 66, 129-138. (292)

Cameron, E., Eisenberg, N., & Tryon, K. (1985). The relations between sex-typed play and preschoolers' social behavior. Sex Roles, 12, 601-615. (288)

Carlo, G., Knight, G. P., Eisenberg, N., & Rotenberg, K. J. (1991). Cognitive processes and prosocial behaviors among children: The role of affective attributions and reconciliations. Developmental Psychology, 27, 456-461. (24)

Carlo, G., Koller, S. H., Eisenberg, N., Da Silva, M. S., & Frohlich, C. B. (in press). A cross-national study on the relations among prosocial moral reasoning, gender role orientations, and prosocial behaviors. Developmental Psychology. (475).

Cauley, K., & Tyler, B. (1989). The relationship of self-concept to prosocial behavior in children. Early Childhood Research Quarterly, 4, 51-60. (323)

Chambers, J. H., & Ascione, F. R. (1988). The effects of prosocial and aggressive videogames on children's donating and helping. Journal of Genetic Psychology, 148, 499-505. (164)

Chapman, M., Zahn-Waxler, C., Cooperman, G., & Iannotti, R. (1987). Empathy and responsibility in the motivation of children's helping. Developmental Psychology, 23, 140-145. (197)

Cialdini, R. B., Eisenberg, N., Shell, R., & McCreath, H. (1987). Commitments to help by children: Effects on subsequent prosocial self-attributions. British Journal of Social Psychology, 26, 237-245. (167)

Cialdini, R. B., & Kenrick, D. T. (1976). Altruism as hedonism: A social development perspective on the relationship of negative mood state and helping. Journal of Personality and Social Psychology, 34, 907-914. (161)

Coates, B., Pusser, H. E., & Goodman, I. (1976). The influence of "Sesame Street" and "Mister Rogers' Neighborhood" on children's social behavior in the preschool. Child Development, 47, 138-144. (165)

Collins, W. A., & Getz, S. K. (1976). Children's social responses following modeled reaction to provocation: Prosocial effects of a television drama. Child Development, 47, 488-500. (166)

Costin, S. E., & Jones, D. C. (1992). Friendship as a facilitator of emotional responsiveness and prosocial interventions among young children. Developmental Psychology, 28, 941-947. (12)

Crockenberg, S. B., Bryant, B. K., & Wilce, L. S. (1976). The effects of cooperatively and competitively structured learning environments on inter- and intrapersonal behavior. Child Development, 47, 386-396. (162)

Cummings, E. M., Pellegrini, D. S., & Notarius, C. I. (1989). Children's responses to angry adult behavior as a function of marital distress and history of interparent hostility. Child Development, 60, 1035-1043. (26)

Cummings, E. M., & Smith, D. (1993). The impact of anger between adults on siblings' emotions and social behavior. Journal of Child Psychology and Psychiatry, 34, 1425-1433. (206)

Cummings, E. M., Zahn-Waxler, C., & Radke-Yarrow, M. (1984). Developmental changes in children's reactions to anger in the home. Journal of Child Psychology and Psychiatry, 25, 63-74. (205)

Cummings, E. M., Zahn-Waxler, C., & Radke-Yarrow, M. (1981). Young children's responses to expressions of anger and affection by others in the family. Child Development, 52, 1274-1282. (462)

Curtrona, C. E., & Feshbach, S. (1979). Cognitive and behavioral correlates of children's differential use of social information. Child Development, 50, 1036-1042. (163)

Das, R., & Berndt, T. J. (1992). Relations of preschoolers' social acceptance to peer ratings and self-perceptions. Early Education and Development, 3, 221-231. (183)

Dekovic, M., & Gerris, J. R. M. (1994). Developmental analysis of social cognitive and behavioral differences between popular and rejected children.

Journal of Applied Developmental Psychology, 15, 367-386. (336)

Denham, S. A., & Holt, R. W. (1993). Preschoolers' likability as a cause and consequence of their social behavior. Developmental Psychology, 29, 271-275. (174)

DeVoe, M. W., & Sherman, T. M. (1978). A microtechnology for teaching prosocial behavior to children. Child Study Journal, 8, 83-91. (369)

Dlugokinski, E., & Firestone, I. J. (1973). Congruence among four methods of other-centeredness. Child Development, 44, 304-308. (93)

Doescher, S. M., & Sugawara, A. I. (1990). Sex role flexibility and prosocial behavior among preschool children. Sex Roles, 22, 111-123. (92)

Doland, D. J., & Adelberg, K. (1967). The learning of sharing behavior. Child Development, 38, 695-700. (308)

Dreman, S. B., & Greenbaum, C. W. (1973). Altruism or reciprocity: Sharing behavior in Israeli kindergarten children. Child Development, 44, 61-68. (382)

Dressel, S., & Midlarsky, E. (1978). The effects of model's exhortations, demands, and practices on children's donation behavior. Journal of Genetic Psychology, 132, 211-223. (91)

Duveen, G., Lloyd, B., & Smith, C. (1988). A note on the effects of age and gender on children's social behaviour. British Journal of Social Psychology, 27, 275-278. (231)

Eberly, M. B., Montemayor, R., & Flannery, D. J. (1993). Variation in adolescent helpfulness towards parents in a family context. Journal of Early Adolescence, 13, 228-244. (334)

Eisenberg, N., Bartlett, K., & Haake, R. (1983). The effects of nonverbal cues concerning possession of a toy on children's proprietary and sharing behaviors. Journal of Genetic Psychology, 143, 79-85. (291)

Eisenberg, N., Cameron, E., Tryon, K., & Dodez, R. (1981). Socialization of prosocial behavior in the preschool classroom. Developmental Psychology, 17, 773-782. (477)

Eisenberg, N., Carlo, G., Murphy, B., & Van Court, P. (in press). Prosocial development in late adolescence. Child Development. (473)

Eisenberg, N., Cialdini, R. B., McCreath, H., & Shell, R. (1989). Consistency-based compliance in children: When and why do consistency procedures have immediate effects? International Journal of Behavioral Development, 12, 351-367. (42)

Eisenberg, N., Fabes, R. A., Karbon, M., Murphy, B. C., Wosinski, M., Polazzi, L., Carlo, G., & Juhnke, C. (in press). The relations of children's dispositional prosocial behavior to emotionality, regulation, and social functioning. Child Development. (325)

Eisenberg, N., Fabes, R. A., Karbon, M., Murphy, B. C., Carlo, G., & Wosinski, M. (in press). Relations of school children's comforting behavior to empathy-related reactions and shyness. Social Development. (180)

Eisenberg, N., Fabes, R. A., & Murphy, B. (1995). Relations of parents' reactions to children's negative emotions to social competence and comforting behavior. Manuscript under review.

Eisenberg, N., Fabes, R. A., Murphy, B., Maszk, P., Smith, M., & Karbon, M. (in press). The role of emotionality and regulation in children's social functioning: A longitudinal study. Child Development. (122)

Eisenberg, N., Fabes, R. A., Miller, P. A., Shell, R., Shea, C., & May-Plumlee, T. (1990). Preschoolers' vicarious emotional responding and their situational and dispositional prosocial behavior. Merrill-Palmer Quarterly, 36, 507-529. (125)

Eisenberg, N., Fabes, R. A., Minore, D., Mathy, R., Hanish, L., & Brown, T. (1994). Children's enacted interpersonal strategies: Their relations to social behavior and negative emotionality. Merrill-Palmer Quarterly, 40, 212-232. (188)

Eisenberg, N., & Giallanza, S. (1984). The relation of mode of prosocial behavior and other proprietary behaviors to toy dominance. Child Study Journal, 14, 115-121. (289)

Eisenberg, N., McCreath, H., & Ahn, R. (1988). Vicarious emotional responsiveness and prosocial behavior: Their interrelations in young children. Personality and Social Psychology Bulletin, 14, 298-311. (451)

Eisenberg, N., Miller, P. A., Shell, R., McNalley, S., & Shea, C. (1991). Prosocial development in adolescence: A longitudinal study. Developmental Psychology, 27, 849-857. (309)

Eisenberg, N., Pasternack, J. F., Cameron, E., & Tryon, K. (1984). The relation of quantity and mode of prosocial behavior to moral cognitions and social style. Child Development, 55, 1479-1485. (202)

Eisenberg, N., & Shell, R. (1986). Prosocial moral judgment and behavior in children: The mediating role of cost. Personality and Social Psychology Bulletin, 12, 426-433. (37)

Eisenberg, N., Shell, R., Pasternack, J., Lennon, R., Beller, R., & Mathy, R. M. (1987). Prosocial development in middle childhood: A longitudinal study. Developmental Psychology, 23, 712-718. (196)

Eisenberg-Berg, N., & Geisheker, E. (1979). Content of preachings and power of the model/preacher: The effect on children's generosity. Developmental Psychology, 15, 168-175. (293)

Eisenberg-Berg, N., Haake, R., & Bartlett, K. (1981). The effects of possession and ownership on the sharing and proprietary behaviors of preschool children. Merrill-Palmer Quarterly, 27, 61-68. (345)

Eisenberg-Berg, N., Haake, R., Hand, M., & Sadalla, E. (1979). Effects of instructions concerning ownership of a toy on preschoolers' sharing and defensive behaviors. Developmental Psychology, 15, 460-461. (292)

Eisenberg-Berg, N., & Hand, M. (1979). The relationship of preschoolers' reasoning about prosocial moral conflicts to prosocial behavior. Child Development, 50, 356-363. (287)

Eisenberg-Berg, N., Hand, M., & Haake, R. (1981). The relationship of preschool children's habitual use of

space to prosocial, antisocial, and social behaviors. Journal of Genetic Psychology, 138, 111-121. (366)

Eisenberg-Berg, N., & Lennon, R. (1980). Altruism and the assessment of empathy in the preschool years. Child Development, 51, 552-557. (458)

Elliot, R., & Vasta, R. (1970). The modeling of sharing: Effects associated with vicarious reinforcement, symbolization, age and generalization. Journal of Experimental Child Psychology, 10, 8-15. (401)

Emler, N. P., & Rushton, J. P. (1974). Cognitive-developmental factors in children's generosity. British Journal of Social and Clinical Psychology, 13, 277-281. (476)

Estrada, P. (1995). Adolescents' self-reports of prosocial responses to friends and acquaintances: The role of sympathy-related cognitive, affective, and motivational processes. Journal of Research on Adolescence, 5, 173-200. (478)

Fabes, R. A., Eisenberg, N., & Eisenbud, L. (1993). Behavioral and physiological correlates of children's reactions to others in distress. Developmental Psychology, 29, 655-663. (455)

Fabes, R. A., Eisenberg, N., Karbon, M., Bernzweig, J., Speer, A. L., & Carlo, G. (1994). Socialization of children's vicarious emotional responding and prosocial behavior: Relations with mothers' perceptions of children's emotional reactivity. Developmental Psychology, 30, 44-55. (16)

Fabes, R. A., Eisenberg, N., Karbon, M., Troyer, D., & Switzer, G. (1994). The relations of children's emotion regulation to their vicarious emotional responses and comforting behaviors. Child Development, 65, 1678-1693. (25)

Fabes, R. A., Eisenberg, N., & Miller, P. A. (1990). Maternal correlates of children's vicarious emotional responsiveness. Developmental Psychology, 26, 639-648. (23)

Fabes, R. A., Fultz, J., Eisenberg, N., May-Plumlee, T., & Christopher, F. S. (1989). Effects of rewards on children's prosocial motivation: A socialization study. Developmental Psychology, 25, 509-515. (195)

Farver, J. A. M., & Branstetter, W. H. (1994). Preschoolers' prosocial responses to their peers' distress. Developmental Psychology, 30, 334-341. (17)

Fouts, G. T. (1972). Charity in children: The influence of "charity" stimuli and an audience. Journal of Experimental Child Psychology, 13, 303-309. (351)

Frankel, K. A., Lindahl, K., & Harmon, R. J. (1992). Preschoolers' response to maternal sadness: Relationships to maternal depression and emotional availability. Infant Mental Health Journal, 13, 132-146. (300)

Friedrich, L. K., & Stein, A. H. (1973). Aggressive and prosocial television programs and the natural behavior of preschool children. Monographs of the Society for Research in Child Development (Vol. 38, No. 4). (459)

Friedrich, L. K., & Stein, A. H. (1975). Prosocial television and young children: The effects of verbal labeling and role playing on learning and behvior. Child Development, 46, 27-38. (38)

Friedrich-Cofer, L. K., Huston-Stein, A., Kipnis, D. M., Susman, E. J., & Clewett, A. S. (1979). Environmental enhancement of prosocial television content: Effects on interpersonal behavior, imaginative play, and self-regulation in a natural setting. Developmental Psychology, 16, 637-646. (41)

Froming, W. J., & Allen, L. (1983). Age and generosity reconsidered: Cross-sectional and longitudinal evidence. Child Development, 54, 585-593. (36)

Furman, W. (1987). Acquaintanceship in middle childhood. Developmental Psychology, 23, 563-570. (19)

Furman, W., & Buhrmester, D. (1985). Children's perceptions of the personal relationships in their social networks. Developmental Psychology, 21, 1016-1024. (408)

Garner, P. W., Jones, D. C., & Miner, J. L. (1994). Social competence among low-income preschoolers: Emotional socialization practices and social cognitive correlates. Child Development, 65, 622-637. (463)

Garner, P. W., Jones, D. C., & Palmer, D. J. (1994). Social cognitive correlates of preschool children's sibling caregiving behavior. Developmental Psychology, 30, 905-911. (394)

Gray, R., & Pirot, M. (1983). The effects of prosocial modeling on young children's nurturing of a "sick" child. Psychology and Human Development, 1, 41-46. (47)

Grusec, J. E. (1991). Socializing concern for others in the home. Developmental Psychology, 27, 338-342. (194)

Grusec, J. E. (1971). Power and the internalization of self-denial. Child Development, 42, 93-105. (50)

Grusec, J. E., Kuczynski, L., Rushton, J. P., & Simutis, Z. M. (1978). Modeling, direct instruction, and attributions: Effects on altruism. Developmental Psychology, 14, 51-57. (45)

Grusec, J. E., Saas-Kortsaak, P., & Simutis, Z. M. (1978). The role of example and moral exhortion in the training of altruism. Child Development, 49, 920-923. (364)

Grusec, J. E., & Skubiski, S. L. (1970). Model nurturance, demand characteristics of the modeling experiment, and altruism. Journal of Personality and Social Psychology, 14, 352-359. (51)

Grusec, J. E., & Redler, E. (1980). Attribution, reinforcement, and altruism: A developmental analysis. Developmental Psychology, 16, 525-534. (102)

Gupta, P. (1982). Altruism or reciprocity: Sharing behaviour in Hindu kindergarten children. Psychological Studies, 27, 68-73. (249)

Gupta, P., & Ghargava, P. (1977). Sharing behaviour in children as a function of model generosity and vicarious reinforcement. Psychologia, 20, 221-225. (248)

Hamilton, S. F., & Fenzel, L. M. (1988). The impact of volunteer experience on adolescent social development: Evidence of program effects. Journal of Adolescent Research, 3, 65-80. (360)

Hampson, R. B. (1984). Adolescent prosocial behavior: Peer-group and situational factors associated

with helping. Journal of Personality and Social Psychology, 46, 151-162. (56)

Harris, M. B. (1970). Reciprocity and generosity: Some determinants of sharing in children. Child Development, 41, 313-328. (361)

Harris, M. B. (1971). Models, norms, and sharing. Psychological Reports, 29, 147-155. (55)

Harris, M. B., & Siebel, C. E. (1975). Affect, aggression, and altruism. Developmental Psychology, 11, 623-627. (44)

Hay, D. F. (1979). Cooperative interactions and sharing between very young children and their parents. Developmental Psychology, 15, 647-653. (94)

Hay, D. F., & Murray, P. (1982). Giving and requesting: Social facilitation of infants' offers to adults. Infant Behavior and Development, 5, 301-310. (48)

Hoffman, M. L. (1975). Sex differences in moral internalization and values. Journal of Personality and Social Psychology, 32, 720-729. (465)

Holte, C. S., Jamruszka, V., Gustafson, J., Beaman, A. L., & Camp, G. C. (1984). Influence of children's positive self-perceptions on donating behavior in a naturalistic setting. Journal of Social Psychology, 22, 145-153. (53)

Honig, A. S., Douthit, D., Lee, J., & Dingler, C. (1992). Prosocial and aggressive behaviors of preschoolers at play in secular and church-based day care. Early Child Development and Care, 83, 93-101. (284)

Howes, C., & Farver, J. (1987). Toddlers' responses to the distress of their peers. Journal of Applied Developmental Psychology, 8, 441-452. (49)

Hudson, L. M., Forman, E. A., & Brion-Meisels, S. (1982). Role taking as a predictor of prosocial behavior in cross-age tutors. Child Development, 53, 1320-1329. (54)

Hull, D., & Reuter, J. (1977). The development of charitable behavior in elementary school children. Journal of Genetic Psychology, 131, 147-153. (52)

Hurwitz, B. D., & Gaylord-Ross, R. J. (1983). Role-taking ability and prosocial behavior between nonretarded and retarded (confederate) peers. Education and Training of the Mentally Retarded, 197-203. (103)

Iannotti, R. J. (1985). Naturalistic and structured assessments of prosocial behavior in preschool children: The influence of empathy and perspective taking. Developmental Psychology, 21, 46-55. (71)

Iannotti, R. J., Dummings, E. M., Pierrehumberg, B., Zahn-Waxler, C., & Milano, M. J. (1992). Parental influences on prosocial behavior and empathy in early childhood. In J. Janssens & J. Gerris (Eds.), Child rearing: Influence on prosocial and moral development (pp. 77-100). Lisse, The Netherlands: Swets & Zeitlinger. (224)

Isen, A. M., Horn, N., & Rosenhan, D. L. (1973). Effects of success and failure on children's generosity. Journal of Personality and Social Psychology, 27, 239-247. (410)

Israel, A. C., & Brown, M. S. (1979). Effects of directiveness of instructions and surveillance on the production and persistence of children's donations. Journal of Experimental Child Psychology, 27, 250-261. (72)

Israel, A. C., & Raskin, P. A. (1979). Directiveness of instructions and modeling: Effect on production and persistence of children's donations. Journal of Genetic Psychology, 135, 269-277. (70)

Israely, Y., & Guttmann, J. (1983). Children's sharing behavior as a function of exposure to puppet show and story models. Journal of Genetic Psychology, 142, 311-312. (69)

Johnson, D. B. (1982). Altruistic behavior and the development of self in infants. Merrill-Palmer Quarterly, 28, 279-388. (68)

Jones, G. P., & Dembo, M. H. (1989). Age and sex role differences in intimate friendships during childhood and adolescence. Merrill-Palmer Quarterly, 35, 445-462. (209)

Kalliopuska, M. (1991). Study on the empathy and prosocial behaviour of children in three day-care centers. Psychological Reports, 68, 375-378. (260)

Katz, P. A., Katz, I., & Cohen, S. (1978). White children's attitudes towards blacks and the physically handicapped: A developmental study. Journal of Educational Psychology, 58, 20-24. (74)

Keith, J. g., Nelson, C. S., Schlabach, J. H., & Thompson, C. J. (1990). The relationship between employment and three measures of early adolescent responsibility: Family-related, personal, and social. Journal of Early Adolescence, 10, 399-415. (207)

Kenrick, D. T., Baumann, D. J., & Cialdini, R. B. (1979). A step in the socialization of altruism as hedonism: Effects of negative mood on children's generosity under public and private conditions. Journal of Personality and Social Psychology, 37, 747-755. (67)

King, L. M., & Barnett, M. A. (1982). Age and sex differences in preschoolers' helpfulness. Child Study Journal, 12, 143-149. (79)

Klein, R. P., & Yarrow, L. J. (1980). Maternal behavior and sharing by toddlers. Psychological Reports, 46, 1057-1058. (77)

Knight, G. P., Bohlmeyer, E. M., Schneider, H., & Harris, J. D. (1993). Age differences in temporal monitoring and equal sharing in a fixed-duration sharing task. British Journal of Developmental Psychology, 11, 143-158. (213).

Knight, G. P., Johnson, L. G., Carlo, G., & Eisenberg, N. (1994). A multiplicative model of the dispositional antecedents of a prosocial behavior: Predicting more of the people more of the time. Journal of Personality and Social Psychology, 66, 178-183. (461)

Knudson, K. H. M., & Kagan, S. (1982). Differential development of empathy and prosocial behavior. Journal of Genetic Psychology, 140, 249-251. (235)

Kochanska, G., De Vet, K., Goldman, M., Murray, K., & Putnam, S. P. (1994). Maternal reports of conscience development and temperament in young children. Child Development, 65, 852-868. (172)

Krebs, D. L., & Sturrup, B. (1982). Role-taking ability and altruistic behavior in elementary school children. Journal of Moral Education, 11, 94-100. (75)

Larrieu, J., & Mussen, P. (1987). Some personality and motivational correlates of children's prosocial behavior. Journal of Genetic Psychology, 147, 529-542. (62)

Lawton, J. T., & Burk, J. (1990). Effects of advance organizer instruction on preschool children's prosocial behavior. Journal of Structured Learning, 10, 215-226. (320)

LeMare, L., & Krebs, D. (1983). Perspective-taking and style of (pro) social behavior in elementary school children. Academic Psychology Bulletin, 5, 239-298. (379)

Lennon, R., Eisenberg, N., & Carroll, J. (1986). The relation between nonverbal indices of empathy and preschoolers' prosocial behavior. Journal of Applied Developmental Psychology, 3, 219-224. (227)

Leong, F. T. L., & Tata, S. P. (1990). Sex and acculturation differences in occupational values among Chinese-American children. Journal of Counseling Psychology, 37, 208-212. (321)

Leung, J. J., & Foster, S. F. (1985). Helping the elderly: A study on altruism in children. Child Study Journal, 15, 293-309. (63)

Liss, M. B., Reinhardt, L. C., & Fredriksen, S. (1983). TV heroes: The impact of rhetoric and deeds. Journal of Applied Developmental Psychology, 4, 175-187. (313)

Lloyd, B., & Smith, C. (1986). The effects of age and gender on social behaviour in very young children. British Journal of Social Psychology, 25, 33-41. (60)

Londerville, S., & Main, M. (1981). Security of attachment, compliance, and maternal training methods in the second year of life. Developmental Psychology, 17, 289-299. (66)

Ma, H. (1985). A cross-cultural study of sex differences in human relationships. Psychological Reports, 56, 799-802. (139)

Ma, H., & Leung, M. C. (1991). Altruistic orientation in children: Construction and validation of the child altruism inventory. International Journal of Psychology, 26, 745-759. (479)

Ma, H., & Leung, M. C. (1992). Effects of age, sex, and social relationships on the altruistic behavior of Chinese children. Journal of Genetic Psychology, 153, 293-303. (472)

Marcus, R. F. & Jenny, B. (1977). A naturalistic study of reciprocity in the helping behavior of young children. The Alberta Journal of Educational Psychology, 23, 195-206. (236)

Maruyama, G., Fraser, S. C., & Miller, N. (1982). Personal responsibility and altruism in children. Journal of Personality and Social Psychology, 42, 658-664. (135)

Marsh, D. T., Serafica, F. C., & Barenboim, C. (1981). Interrelationships among perspective taking, interpersonal problem solving, and interpersonal functioning. Journal of Genetic Psychology, 138, 37-48. (138)

Masters, J. C. (1971). Effects of social comparison upon children's self-reinforcement and altruism toward competitors and friends. Developmental Psychology, 5, 64-72. (133)

Masters, J. C., & Pisarowicz, P. A. (1975). Self-reinforcement and generosity following two types of altruistic behavior. Child Development, 46, 313-318. (131)

McCoy, C. L., & Masters, J. C. (1985). The development of children's strategies for the social control of emotion. Child Development, 56, 1214-1222. (396)

McGrath, M. P., & Power, T. G. (1990). The effects of reasoning and choice on children's prosocial behavior. International Journal of Behavioral Development, 13, 345-353. (356)

McGrath, M. P., Wilson, S. R., & Frassetto, S. J. (in press). Why some forms of inductive reasoning are better than others: Effects of cognitive focus, choice, and affect on children's prosocial behavior. Merrill-Palmer Quarterly.

McGuire, J. M., & Thomas, M. H. (1975). Effects of sex, competence, and competition on sharing behavior in children. Journal of Personality and Social Psychology, 32, 490-494. (132)

McGuire, K. D., & Weisz, J. R. (1982). Social cognition and behavior correlates of preadolescent chumship. Child Development, 53, 1478-1484. (140)

Midlarsky, E., & Bryan, J. H. (1972). Affect expressions and children's imitative altruism. Journal of Experimental Child Psychology, 6, 195-203. (409)

Midlarsky, E., & Hannah, M. E. (1985). Competence, reticence, and helping by children and adolescents. Developmental Psychology, 21, 534-541. (480)

Miller, P. A., Eisenberg, N., Fabes, R. A., & Shell, R. (in press). The effects of moral reasoning and vicarious emotion on young children's prosocial behavior toward peers and adults. Developmental Psychology. (324)

Miller, S. M. (1979). Interrelationships among dependency, empathy, and sharing: A preliminary study. Motivation and Emotion, 3, 183-199. (181)

Mills, R. S. L., & Grusec, J. E. (1989). Cognitive, affective, and behavioral consequences of praising altruism. Merrill-Palmer Quarterly, 35, 299-326. (354)

Mosbacher, B. J., Gruen, G. E., & Rychlak, J. F. (1987). Incentive value: The overlooked dimension in childhood sharing. Journal of Genetic Psychology, 146, 197-204. (136)

Muller, A. A., & Perlmutter, M. (1985). Preschool children's problem-solving interactions at computers and jigsaw puzzles. Journal of Applied Developmental Psychology, 6, 173-186. (134)

Moore, B. S., Underwood, B., & Rosenhan, D. L. (1973). Developmental Psychology, 8, 99-104. (405)

Mullis, R. L., Smith, D. W., & Vollmers, K. E. (1983). Prosocial behaviors in young children and parental guidance. Child Study Journal, 13, 13-21. (130)

Musun-Miller, L. (1991). Effects of maternal presence on sibling behavior. Journal of Applied Developmental Psychology, 12, 145-147. (355)

Nadler, A., Romek, E., & Shapira-Friedman, A. (1979). Giving in the kibbutz: Prosocial behavior of city and kibbutz children as affected by social responsibility and social pressure. Journal of Cross-Cultural Psychology, 10, 57-72. (255)

O'Bryant, S. L., & Brophy, J. E. (1976). Sex differences in altruistic behavior. Developmental Psychology, 12, 554. (214)

Olejnik, A. B. (1976). The effects of reward-deservedness on children's sharing. Child Development, 47, 380-385. (347)

Owens, C. R., & Ascione, F. R. (1992). Effects of the model's age, perceived similarity, and familiarity on children's donating. Journal of Genetic Psychology, 152, 341-357. (353)

Pandey, J., Bisht, S., & Rani, S. (1987). Children's donations as a function of age, gender, and resources. Psychological Studies, 32, 9-14. (274)

Parish, T. S. (1977). The enhancement of altruistic behaviors in children through the implementation of language conditioning procedures. Behavior Modification, 1, 395-404. (98)

Parker, J. G., & Asher, S. R. (1993). Friendship and friendship quality in middle childhood: Links with peer group acceptance and feelings of loneliness and social dissatisfaction. Developmental Psychology, 29, 811-821. (15)

Pastor, D. L. (1981). The quality of mother-infant attachment and its relationship to toddlers' initial socialibilty with peers. Developmental Psychology, 17, 326-335. (453)

Payne, F. D. (1980). Children's prosocial conduct in structured situations and as viewed by others: Consistency, convergence, and relationships with person variables. Child Development, 51, 1252-1259. (100)

Perry, D. G., Bussey, K., & Freiberg, K. (1981). Impact of adults' appeals for sharing on the development of altruistic dispositions in children. Journal of Experimental Child Psychology, 32, 127-138. (184)

Peterson, L. (1980). Developmental changes in verbal and behavioral sensitivity to cues of social norms of altruism. Child Development, 51, 830-838. (281)

Peterson, L. (1983). Role of donor competence, donor age, and peer presence on helping in an emergency. Developmental Psychology, 19, 873-880. (95)

Peterson, L. (1983). Influence of age, task competence, and responsibility focus on children's altruism. Developmental Psychology, 19, 141-148. (99)

Pettit, G. S., Dodge, K. A., & Brown, M. M. (1988). Early family experience, social problem solving, and children's social competence. Child Development, 59, 107-120. (27)

Post-Kammer, P. (1987). Intrinsic and extrinsic work values and career maturity of 9th- and 11th-grade boys and girls. Journal of Counseling and Development, 65, 420-423. (175)

Profilet, S. M., & Ladd, G. W. (1994). Do mothers' perceptions and concerns about preschoolers' peer competence predict their peer-management practices? Social Development, 3, 205-221. (192)

Radke-Yarrow, M., Zahn-Waxler, C., Barrett, D., Darby, J., King, R., Pickett, M., & Smith, J. (1976). Dimensions and correlates of prosocial behavior in young children. Child Development, 47, 118-125. (85)

Radke-Yarrow, M., Zahn-Waxler, C., Richardson, D. T., Susman, A., & Martinez, P. (1994). Caring behavior in children of clinically depressed and well mothers. Child Development, 65, 1405-1414. (11)

Ramsey, P. G. (1988). Social skills and peer status: A comparison of two socioeconomic groups. Merrill-Palmer Quarterly, 34, 185-202. (210)

Raviv, A., & Bar-Tal, D. (1981). Demographic correlates of adolescents' helping behavior. Journal of Youth and Adolescence, 10, 45-53. (89)

Raviv, A., Bar-Tal, D., Ayalon, H., & Raviv, A. (1980). Perception of giving and receiving help by group members. Representative Research in Social Psychology, 11, 140-151. (285)

Rehberg, H. R., & Richman, C. L. (1989). Prosocial behaviour in preschool children: A look at the interaction of race, gender, and family composition. International Journal of Behavioral Development, 12, 385-401. (88)

Rheingold, H. L. (1982). Little children's participation in the work of adults, a nascent prosocial behavior. Child Development, 53, 114-125. (343)

Rheingold, H. L., & Emery, G. N. (1986). The nurturant acts of very young children. In D. Olweus, J. Block, & M. Radke-Yarrow (Eds.), Development of antisocial and prosocial behavior (pp. 75-96). Orlando, FL: Academic Press. (452)

Rheingold, H. L., Hay, D. F., & West, M. J. (1976). Sharing in the second year of life. Child Development, 47, 1148-1158. (87)

Richman, C. L., Berry, C., Bittle, M., & Himan, K. (1988). Factors related to helping behavior in preschool-age children. Journal of Applied Developmental Psychology, 9, 151-165. (215)

Roberts, W., & Strayer, J. (in press). Empathy, emotional expressiveness, and prosocial behavior. Child Development. (327)

Rosenhan, D. L., Underwood, B., & Moore, B. (1974). Affect moderates self-gratification and altruism. Journal of Personality and Social Psychology, 30, 546-552. (80)

Rosenhan, D. L., & White, G. M. (1967). Observation and rehearsal as determinants of prosocial behavior. Journal of Personality and Social Psychology, 5, 424-431. (306)

Rubin, K. H., & Schneider, F. W. (1973). The relationship between moral judgment, egocentrism, and altruistic behavior. Child Development, 44, 661-665. (278)

Rushton, J. P. (1975). Generosity in children: Immediate and long-term effects of modeling, preaching, and moral judgment. Journal of Personality and Social Psychology, 31, 459-466. (82)

Rushton, J. P., & Owen, D. (1975). Immediate and delayed effects of TV modeling and preaching on children's generosity. British Journal of Social and Clinical Psychology, 14, 309-310. (81)

Rushton, J. P. & Wiener, J. (1975). Altruism and cognitive development in children. British Journal of Developmental Psychology, 14, 341-349. (84)

Schenk, V. M., & Grusec, J. E. (1987). A comparison of prosocial behavior of children with and without day care experience. Merrill-Palmer Quarterly, 33, 231-240. (107)

Sharabany, R., Gershoni, R., & Hofman, J. E. (1981). Girlfriend, boyfriend: Age and sex differences in intimate friendship. Developmental Psychology, 17, 800-808. (406)

Sharabany, R., & Hertz-Lazarowitz, R. (1981). Do friends share and communicate more than non-friends? International Journal of Behavioral Development, 4, 45-59. (397)

Sharma, V. (1988). Effect of birthorder, age, and sex on helping behaviour of children. Indian Journal of Psychometry & Education, 19, 91-96. (168)

Shigetomi, C. C., Hartmann, D. P., & Gelfand, D.,. (1981). Sex differences in children's altruistic behavior and reputations for helpfulness. Developmental Psychology, 17, 434-437. (111)

Sibulkin, A. E. (1983). What's it to them? The value of considerateness to children. In D. L. Bridgeman (Ed.), The nature of prosocial development (pp. 139-162). New York: Academic Press. (375)

Silverman, I. W. (1967). Incidence of guilt reactions in children. Journal of Personality and Social Psychology, 7, 338-340. (317)

Simmons, C. H., & Zumpf, C. (1986). The gifted child: Perceived competence, prosocial moral reasoning, and charitable donations. Journal of Genetic Psychology, 147, 97-105. (312)

Sims, S. A. (1978). Sharing by children: Effects of behavioral example, induction, and resources. The Journal of Psychology, 100, 57-65. (109)

Sprafkin, J. N., Liebert, R. M., & Poulos, R. W. (1975). Effects of a prosocial televised example on children's helping. Journal of Experimental Child Psychology, 20, 119-126. (110)

Sprafkin, J. N., & Rubinstein, E. A. (1979). Children's television viewing habits and prosocial behavior: A field correlational study. Journal of Broadcasting, 23, 265-276. (112)

Staub, E. (1970). A child in distress: The influence of age and number of witnesses on children's attempts to help. Journal of Personality and Social Psychology, 14, 130-140. (105)

Staub, E. (1971). A child in distress: The influence of nurturance and modeling on children's attempts to help. Developmental Psychology, 5, 124-132. (108)

Staub, E., & Sherk, L. (1970). Need for approval, children's sharing behavior, and reciprocity in sharing. Child Development, 41, 243-252. (377)

Stanhope, L., Bell, R. Q., & Parker-Cohen, N. Y. (1987). Temperament and helping behavior in preschool children. Developmental Psychology, 23, 347-353. (114)

Stewart, R. B., & Marvin, R. S. (1984). Sibling relations: The role of conceptual perspective-taking in the ontogeny of sibling caregiving. Child Development, 55, 1322-1332. (203)

Stith, M., & Connor, R. (1962). Dependency and helpfulness in young children. Child Development, 33, 15-20. (305)

Strayer, J., & Roberts, W. (1989). Children's empathy and role taking: Child and parental factors, and relations to prosocial behavior. Journal of Applied Developmental Psychology, 10, 227-239. (226)

Szagun, G. (1992). Children's understanding of the feeling experience and causes of sympathy. Journal of Child Psychology and Psychiatry, 33, 1183-1191. (342)

Tabor, C., & Shaffer, D. R. (1981). Effects of age and benefactor, attractiveness of the recipient, and the recipient's need for assistance on prosocial behavior in children's dyads. Social Behavior and Personality, 9, 163-169. (378)

Tyler, F. B., & Varma, M. (1988). Help-seeking and helping behavior in children as a function of psychosocial competence. Journal of Applied Developmental Psychology, 9, 219-231. (265)

Ujiie, T. (1982). Altruistic behavior, social cognition and person orientation in preschool children. In K. Miyake (Ed.), Research and clinical center for child development: Annual report (pp. 63-69). Sappora, Japan: Faculty of Education, Hokkaido University. (341)

Ugurel-Semin, R. (1952). Moral behavior and moral judgment of children. Child Development, 13, 463-474. (400)

Vandell, D. L., & Hembree, S. E. (1994). Peer social status and friendship: Independent contributors to children's social and academic adjustment. Merrill-Palmer Quarterly, 40, 461-477. (189)

Vitaro, F., Gagnon, C., & Tremblay, R. E. (1990). Predicting stable peer rejection from kindergarten to grade one. Journal of Child Clinical Psychology, 19, 257-264. (333)

Vitaro, F., Gagnon, C., & Tremblay, R. E. (1991). Teachers' and mothers' assessment of children's behaviors from kindergarten to grade two: Stability and change within and across informants. Journal of Psychopathology and Behavioral Assessment, 13, 325-343. (329)

Weissbrod, C. S. (1980). The impact of warmth and instructions on donations. Child Development, 51, 279-281. (160)

Werebe, M. J. G., & Baudonniere, P. M. (1988). Friendship among preschool children. International Journal of Behavioral Development, 11, 291-304. (385)

White, G. M. (1982). Immediate and deferred effects of model observation and guided and unguided rehearsal on donating and stealing. Journal of Personality and Social Psychology, 21, 139-148. (154)

Whiting, B., & Edwards, C. P. (1973). A cross-cultural analysis of sex differences in the behavior of children aged three through 11. The Journal of Social Psychology, 91, 171-188. (454)

Wills, J. B., Feldman, N. S., & Ruble, D. N. (1977). Children's generosity as influenced by deservedness of

reward and type of recipient. Journal of Educational Psychology, 69, 33-35. (159)

Wilson, C. C., Piazza, C. C., & Nagle, R. J. (1990). Investigation of the effect of consistent and inconsistent behavioral examples upon children's donation behaviors. Journal of Genetic Psychology, 151, 361-376. (339)

Yarrow, M. R., & Scott, P. M. (1972). Imitation of nurturant and nonnurturant models. Journal of Personality and Social Psychology, 23, 259-270. (310)

Zahn-Waxler, C., Cole, P. M., Richardson, D. T., Friedman, R. J., Michel, M. K., & Belouad, F. (1994). Social problem solving in disruptive preschool children: Reactions to hypothetical situations of conflict and distress. Merrill-Palmer Quarterly, 40, 98-119. (190)

Zahn-Waxler, C., Cole, P. M., Welsh, J. D., & Fox, N. A. (1995). Psychophysiological correlates of empathy and prosocial behaviors in preschool children with behavior problems. Development and Psychopathology, 7, 27-48. (374)

Zahn-Waxler, C., Cummings, E. M., McKnew, D., & Radke-Yarrow, M. (1984). Altruism, aggression, and social interactions in young children with a manic-depressive parent. Child Development, 55, 112-122. (393)

Zahn, Waxler, C., Friedman, S. L., & Cummings, E. M. (1983). Children's emotions and behaviors in response to infants' cries. Child Development, 54, 1522-1528. (34)

Zahn-Waxler, C., Radke-Yarrow, M., Wagner, E., & Chapman, M. (1992). Development of concern for others. Developmental Psychology, 28, 128-126. (464)

Zahn-Waxler, C., Robinson, J. L., & Emde, R. N. (1992). The development of empathy in twins. Developmental Psychology, 28, 1038-1047. (13)

Zarbatany, L., Hartmann, D. P., Gelfand, D. M., & Vinciguerra, P. (1985). Gender differences in altruistic reputation. Developmental Psychology, 21, 97-101. (156)

Zeldin, R. S., Small, S., & Savin-Williams, R. C. (1982). Prosocial interaction in two mixed-sex adolescent groups. Child Development, 53, 1492-1498. (158)