

Moral reasoning in adolescent offenders: A meta-analytic review

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Abstract

Background: Moral reasoning and its association with various types of behavior have been the subject of many studies in Psychology. Specifically, moral reasoning has been widely related to juvenile delinquency in the research about the subject. **Objectives:** this review integrates more than 70 years of scientific research into the differences in moral reasoning between adolescent offenders and non-offenders with a view to elucidating the relationship between moral reasoning and juvenile delinquency with provision for the potential moderating effect of demographic and methodological variables. **Method:** We conducted a meta-analytic review whose target population was young offenders between 11 and 20 years old. **Results:** A search for literature on the target topic retrieved a total of 72 studies with a moderated effect size ($r = -.336$). The most salient finding was that effect sizes were significant for all subgroups of moderating variables. **Conclusions:** This result suggests a powerful relationship between moral reasoning and officially recorded juvenile delinquency that cannot be exclusively ascribed to sociodemographic or methodological variables. There remain some unsolved challenges in this field, however, which are briefly commented on.

Keywords: Moral reasoning, juvenile delinquency, meta-analysis, quantitative review.

Resumen

Razonamiento moral en adolescentes infractores: una revisión sistemática. **Antecedentes:** el estudio de la asociación entre razonamiento moral y diversos comportamientos ha ocupado numerosos estudios en Psicología. Específicamente, el razonamiento moral ha sido ampliamente relacionado con la delincuencia juvenil a lo largo de dichas investigaciones. **Objetivos:** este estudio pretende integrar más de 70 años de producción científica acerca de la búsqueda de sus iguales no infractores en razonamiento moral entre menores infractores y teniendo en cuenta el posible poder moderador tanto de variables demográficas como metodológicas. **Método:** se lleva a cabo una revisión meta-analítica cuya población objetivo fue menores infractores entre 11 y 20 años. **Resultados:** se obtuvo una muestra de 72 estudios, obteniendo un tamaño de efecto moderado de $r = -.336$. Se observa que los tamaños de efecto para los subgrupos que conforman las variables moderadoras son significativos. **Conclusión:** este resultado sugiere que la relación entre razonamiento moral y delincuencia juvenil es potente y no solo atribuible a características metodológicas o sociodemográficas de la muestra. Se finaliza con una reflexión sobre algunos retos pendientes en este campo.

Palabras clave: razonamiento moral, delincuencia juvenil, meta-análisis, revisión cuantitativa.

Criminal behavior in youths is a major social problem not only because of the seriousness of criminal actions but also because of its high predictive ability for criminal behavior to become chronic along the life cycle. Criminal behavior in adolescents has been associated with several factors including moral reasoning (Herzog & Einat, 2016).

Moral reasoning is a cognitive process that allows individuals to make morally acceptable decisions in response to specific situations. Thus, an individual's behavior can only be moral if it arises from moral reasoning (Colby & Kohlberg, 1987). Moral reasoning is thus one of the most important and decisive ingredients of moral behavior. Also, a review by Wu & Liu (2014) provided a moderate effect size ($r = .20$) between moral reasoning and behavior in response to ethical dilemmas. Moral reasoning and its association with various types of behavior have been

the subject of many studies in Psychology, for example, a meta-analysis performed by Villegas & Vargas-Trujillo (2015) revealed a moderate association ($r = .20$) between moral reasoning and a wide variety of behaviors. Specifically, moral reasoning has been related to criminal behavior (Lahat, Gummerum, Mackay, & Hanoch, 2015; Schalkwijk, Stams, Stegge, Dekker, & Peen, 2016).

The two target variables of this meta-analytic review (viz., moral reasoning and adolescent delinquency) were the subjects of two meta-analyses by Nelson, Smith, & Dood (1990) and Stams et al. (2006). The aim of this work was to update and improve them by including moderating variables potentially having a significant impact on the relationship and studying a sample nearly twice larger than that used by the latter authors. We believe a meta-analytic update was in order. Nondeterministic authors have consistently emphasized the importance of ultimately dealing with criminal behavior in the framework of variably complex decision-making. In offenders under judicial measures, this entails examining the role of moral-related cognitive-affective processes. Also, this meta-analytic update reviews goes beyond general antisocial and antinormative conduct in adolescents by focusing on serious, criminally relevant behaviors.

The primary aim of this review was to update existing knowledge on the relationship between moral reasoning and juvenile delinquency. The working hypothesis was that moral reasoning and delinquency in adolescents bear a moderate negative relationship.

The specific objectives derived from the primary aim were as follows:

- a) To ascertain whether demographic variables such as age and sex (percent of men) have a moderating effect on the relationship between moral reasoning and juvenile delinquency (Gregg, Gibbs, & Basinger, 1994).
- b) To determine whether the measuring instruments used in previous studies mediate the relationship between moral reasoning and juvenile delinquency in the belief that production instruments lead to greater effect sizes than do recognition measures (Gavaghan, Arnold, & Gibbs, 1983). In production measures, the subjects produce solutions to moral dilemmas; in recognition measures, they must choose a response from among several choices. We also examined the influence of delinquency assessment questionnaires and subject institutionalization on effect size.
- c) To determine whether study design influences the association between the two target variables. Specifically, to determine whether there are differences on effect size by using one-group design or two-group design (delinquent vs. nondelinquent adolescents).

Method

Procedure

Potential candidates for inclusion in this meta-analytic review were sought among primary studies from a variety of sources. We initially searched several databases (viz., PsycINFO, Web of Science, ERIC, ProQuest Dissertations & Thesis Global, Redalyc, Dialnet and CSIC) for the following descriptors: *moral*, *moral reasoning*, *moral development* AND *delinquen**, *offen** and *crim**. The search comprised studies published in any language and period (until 2017). The databases were also used to search additional literature by the main researchers in the field. Finally, references in the papers thus located were examined to extract additional candidates and relevant researchers were contacted to obtain access to nonsignificant or unpublished studies.

To be included in the meta-analysis, studies needed to fulfil two criteria: (a) the age of the sample subjects fell in the range 11 to 20 years; and (b) the authors should have reported effect sizes or some effect size-related measure for the relationship between the variables moral reasoning and crime.

Besides, only those studies based on official delinquency records in the applicable country were included. Therefore, all studies focusing on antisocial behaviors, traits such as aggressiveness and/or behavioral problems were excluded. Figure 1 shows the flow diagram depicting the flow of information through the different phases of the review. It maps out the number of records identified, included and excluded, and the reasons for exclusions. Besides, we have used PRISMA guidelines to examine our review in a systematic way (Urrutia y Bonfill, 2010). The resulting database used for the meta-analysis is available upon request.

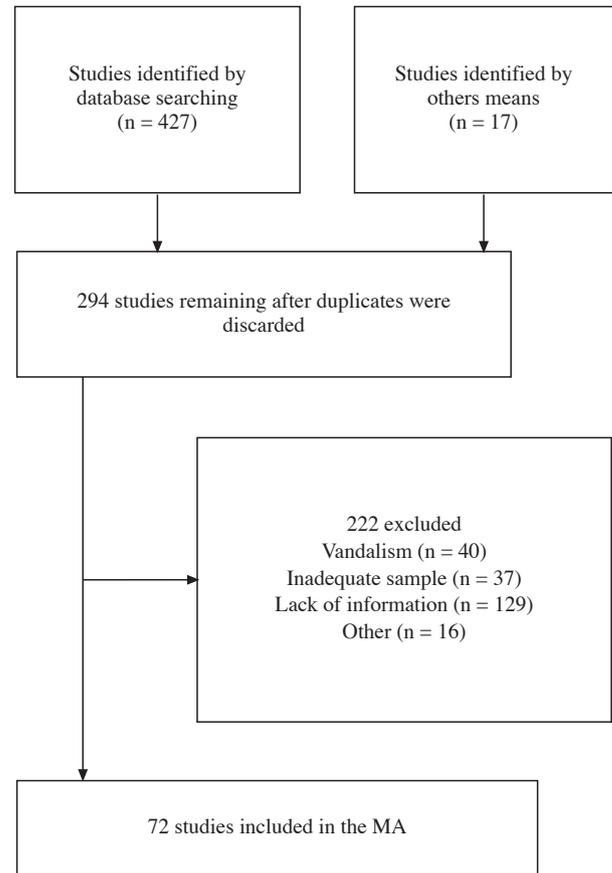


Figure 1. Flow diagram of study selection process

A data coding protocol was used to obtain the following data: year of study, sample size, mean age, sex, and measurement methods of moral reasoning and delinquency, study design and effect size. The protocol was implemented by using a coding sheet that was completed with the previous data separately by two independent researchers. Inter-rater agreement was calculated by using Cohen's Kappa with qualitative variables. The mean value of agreement was .83 varying from .76 to .91. Intraclass correlation coefficient (ICC) was used with continuous variables. ICC was .78 ranging from .75 to .80. All instances of disagreement were discussed by the two judges and, if they persisted, by a third one whose decision was final.

As regards effect size, the studies used various summative measures. All of which were converted into a common one: Pearson's *r*. Finally, these values were transformed into Fisher's *Z*, as the effect size measure. Later, outliers (viz., effect sizes greater than two standard deviations) were identified and deleted afterwards.

In those primary studies where crime was assessed in terms of detention or some other judicial measure, the sample was compared with a control group of nonoffenders. Questionnaire based studies were examined by correlating their outputs with moral reasoning measures. The questionnaires were administered to youths currently or formerly under some judicial measure. Age was reported as the percentage of men on the primary studies. Finally, study design was assessed in terms of one-group design or two-group design.

Data analysis

All computations required were done with the macros for SPSS (Wilson, 2005) and data interpreted by using the "Practical Meta-Analysis" manual by Lipsey & Wilson (2001). The predictor and criterion reliabilities estimates were used to eliminate artifactual variability in the standard deviation of r and for correcting the operational validity. Besides, a univariate analysis of variance (ANOVA) and a meta-regression analysis were used for the study of the moderating variables.

Results

The total number of independent studies found with the above-described searching procedures was 72. The overall sample consisted of 9819 youths aged 11-19 years ($M = 15.5$, $SD = 4.4$). The review encompassed studies performed from 1944 to 2016 and each study comprised a mean of 123 subjects. The proportion of males was much higher than that of females (66% versus only 8%). The remaining studies (26%) involved both sexes (males and females).

When analyzing observed variability, heterogeneity was shown to be very high ($Q(71) = 260.59$, $p < .0001$) which suggested the presence of moderating variables ($I^2 = .727$). The random effect model provided a moderate full-corrected correlation between moral reasoning and crime ($r = -.336$, $p < .001$). This value was statistically significant at the level.

After calculating the ANOVA analysis for qualitative variables, the study design was a significant moderator ($Q(2) = 3.18$, $p < .05$). Thus, effect size (r) increased more in two-group design ($r = -.365$; $p < .001$) than one-group design ($r = -.287$, $p < .001$). The moral reasoning measure was another significant moderator ($Q(2) = 13.17$, $p < .05$). Effect size was greater with production questionnaires ($r = -.374$, $p < .001$) than with recognition measures ($r = -.257$, $p < .001$). The measuring instrument used to assess crime did not result in moderator for the relationship [$Q(3) = 2.80$, *n.s.*]. Table 1 shows the result of ANOVA analysis for all qualitative variables included in the review.

As regards the meta-regression analysis for continuous variables, age was a significant moderator ($Q_R(1) = 11.07$, $p < .001$; $Q_E(62) = 188.80$, $p < .001$; $R^2 = .055$). Thus, the sign positive of the

slope ($m = .07$) indicates that effect size increased with increasing age. Sex was another statistically significant moderator ($Q_R(1) = 9.53$, $p < .01$; $Q_E(65) = 245.44$, $p < .001$; $R^2 = .037$). The slope sign was negative ($m = -.39$) which means effect size was greater for females than for males.

Finally, due to the high number of meta-analysis studies, we proposed an explanatory model. We used a multivariate meta-regression model. We included the moderating variables which were statistically significant in previous analysis: age, sex, moral reasoning measure and study design. However, sex was not a statistically significant moderating variable to explain variance among effect size ($p = .217$) in this multivariate meta-regression model. Therefore, meta-regression model was formed by the moderating variables: age, moral reasoning measure and study design. The ratio of explained variance to total variance was 23.17% ($R^2 = .481$). The regression equation would be:

$$r = .68 - .04(\text{Age}) - .11(\text{Moral reasoning measure}) - .16(\text{Study design})$$

To conclude, publication bias was assessed by calculating the Egger's test ($t = -4.49$, $p < .001$). Consequently, it likely that publication bias has occurred. It can be due to the lack of publications with statistically nonsignificant results.

Discussion

As noted earlier, the primary aim of this work was to confirm that juvenile delinquency is associated with moral reasoning —no causal relationship between the two variables exist, however, even if the two are associated. For this purpose, previous meta-analyses of the association were updated with studies performed over the past seven decades. While the review by Nelson et al. (1990) comprised 15 studies, and that by Stams et al. (2006) 50, our meta-analysis was based on 72 studies. Also, our 72 studies comprised 9819 subjects, which is more than twice the number examined by Stams et al. (2006): 4812. The effect size of this review was moderate ($r = -.336$, equivalent to $d = .662$). This d value is slightly smaller than those reported by Nelson et al (1990) and Stams et al. (2006) in their review ($d = .74$ and $d = .76$ respectively).

Table 1
Univariate ANOVA of effect size by moderator

Moderator	K	N	r	S.E.	Confidence interval		Q_1	Q_2
					LL	UL		
Study Design								
One-group	20	4667	-.287***	.035	-.356	-.218	3.18*	31.25*
Two-group	52	5152	-.365***	.026	-.415	-.314		28.79
Moral Reasoning measure								
Recognition	13	1857	-.257***	.056	-.367	-.147	13.17*	9.51
Production	36	4799	-.374***	.034	-.440	-.307		27.13
Crimes measure								
Questionnaire	12	3873	-.234***	.052	-.335	-.132	2.80	7.42
Institutionalized	13	1194	-.360***	.055	-.468	-.252		17.17
Other measures	3	506	-.287*	.128	-.538	-.037		.89

Note: K = number of studies, N = sample size, r = effect size between moral reasoning and delinquency at each moderator level, SE = Standard error, (LL) = Lower Limit 95% confidence interval, (UL) = Upper Limit 95% confidence interval, Q_1 = homogeneity test (between studies) y Q_2 = homogeneity test (within studies). * $p < .05$, ** $p < .01$, *** $p < .001$

Besides, effect size increased with increasing age. As previously noted by authors such as Eisenberg, Carlo, Murphy, & Van Court (1995), this may have arisen from the substantial growth of moral reasoning at the subjects' age, and differences between normal and deficient subjects as regards moral judgements considerably increasing with age. Regarding sex, effect size was greater for females than it was for males. This result could be due to an earlier cognitive, affective and moral development in girls than in boys. Therefore, it is essential to investigate whether the influence of the sex is only the effect of the age due to an earlier moral development in girls or there could be other important variables which produces differences between girls and boys such as the socialization process. However, this result should be taken cautiously because this variable was not statistically significant in the meta-regression model.

Studies using production measures such as the Moral Judgment Interview (MJI) of Colby & Kohlberg (1987) or the Sociomoral Reflection Measure (SRM) of Gibbs, Widaman, & Colby (1982) provided considerably greater effect sizes than those using recognition measures such as the Defining Issues Test (DIT) of Rest (1975) and the Prosocial Reasoning Objective Measure (PROM) of Carlo, Eisenberg, & Knight (1992). Because they require proactively creating a moral judgement, production measures allow easier distinction of offenders and nonoffenders.

Effect size was smaller with questionnaires measuring delinquency ($r = -.234$) than it was for institutionalized youths

($r = -.360$). It can be due to the environment of institutionalized population who stay each other. This context may increase the tendency to morally disengage (Niebieszczanski, Harkins, Judson, Smith, & Dixon, 2015; Wood, Alleyne, Mozova, & James, 2014). However, these differences were not statistically significant.

Finally, meta-regression model was composed of variables age, moral reasoning measure and study design. It could explain 23.17% variance among effect size. Therefore, in the study of juvenile delinquency and moral reasoning is relevant to consider these variables as important moderators.

In conclusion, moral reasoning and juvenile delinquency bear a powerful relationship that cannot be exclusively ascribed to differences in sociodemographic or methodological features. Moral reasoning should therefore be born in mind in dealing with child and youth education and development, whether or not the subjects are youths under judicial measures, in order to promote a moral viewpoint as a personality development instrument in so critical periods as childhood and adolescence (Wissink et al., 2014). Moral reasoning should thus be an essential ingredient of socialization processes if we are to have a better, fairer, safer society.

Conflict of interest

The authors have no conflicts of interest to declare.

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