

Dimensionality and psychometric properties of the Spanish version of the Mechanisms of Moral Disengagement Scale (MMDS-S)

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Abstract: This study examines the dimensions and psychometric properties of the Spanish version of the Mechanisms of Moral Disengagement Scale (MMDS). The MMDS was designed to evaluate the moral disengagement construct. A sample of 513 students was assessed (58.3% females; 15 to 25 years-of-age). Confirmatory factor analysis showed four models with an adequate fit, both for a first-order factorial structure (Model 1) and a second-order factorial structure (Models 2, 3 and 4). Model 4 achieved the best fit indices [$\chi^2 = 19.35$; RMSEA = .016; GFI = .99; AGFI = .98; ECVI = .11; CAIC = 156.92], a model represented by a general second-order factor (moral disengagement) with three first-order dimensions: disengagement by depersonalization; disengagement by irresponsibility; and disengagement by rationalization. Moreover, significant relations between moral disengagement, aggression, and empathy were found. This scale appears a reliable and valid instrument to evaluate the moral disengagement in adolescents and young adults.

Keywords: Moral disengagement; moral agency; psychometrics; adolescents; young adults.

Resumen: Dimensiones y propiedades psicométricas de la versión española de la Escala de Mecanismos de Desconexión Moral (MMDS). Este trabajo analiza las dimensiones y propiedades psicométricas de la versión española de la Escala de Mecanismos de Desconexión Moral (MMDS). Este instrumento fue diseñado para evaluar el constructo desconexión moral. Se evaluaron 513 estudiantes (58.3% mujeres; rango de 15-25 años). El análisis factorial confirmatorio mostró cuatro modelos con un adecuado ajuste y una estructura factorial de primer orden (Modelo 1), y una estructura de segundo orden (Modelos 2, 3 y 4). El Modelo 4 ofreció el mejor ajuste [$\chi^2 = 19.35$; RMSEA = .016; GFI = .99; AGFI = .98; ECVI = .11; CAIC = 156.92], representado por un factor general de segundo orden (desconexión moral) y tres de primer orden: desconexión por despersonalización; desconexión por irresponsabilidad; y desconexión por racionalización. Se encontraron relaciones significativas entre la desconexión moral, la agresión y la empatía. El instrumento es válido y fiable para evaluar la desconexión moral en adolescentes y adultos jóvenes.

Palabras clave: Desconexión moral; acción moral; psicometría; adolescentes; adultos jóvenes.

Introduction

Cognitive evolution theories propose that moral development evolves through different phases, from a state of heteronomy (or a pre-conventional moral state) to one of moral autonomy, placing special emphasis on the type of reasoning developed rather than on the behaviour associated with it (Kohlberg, 1984; Piaget,

1932). According to Bandura (1990, 1999, 2002), a comprehensive theory of moral action should specify the mechanisms by which people behave in a (*in*)coherent way with respect to moral norms. In the social cognitive theory (Bandura, 1986, 1990, 2002), the relationship between moral reasoning and action is mediated by a series of self-sanctioning and self-regulatory mechanisms, which anticipate moral action and are based on social norms and moral values (Bandura, 1990, 2002; Bandura, Barbaranelli, Caprara, & Pastorelli, 1996).

The voluntary inactivation of these self-regulatory processes is known as *moral disengagement* (MD) and it entails the selective use of a series of socio-cognitive

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mechanisms that encourage the transgression of norms as well as the disinhibition of aggressive impulses and immoral and inhuman behaviours (Bandura, 1990, 2002). These MD mechanisms involve the reinterpretation of harmful and inhuman conduct, the obscuration or minimization of the role of the perpetrator of harm, the falsification or distortion of consequences of violent or immoral behaviour, and the blaming and dehumanization of the victim (Bandura et al., 1996; Osofsky, Bandura, & Zimbardo, 2005).

In all, eight MD mechanisms have been described (Bandura, 1990, 2002): (1) *Moral justification*: Detrimental conduct is made acceptable by portraying it in the service of moral values or moral purposes; (2) *Euphemistic labelling*: Destructive conduct is made benign through sanitized and convoluted verbiage; (3) *Advantageous comparison*: One's injurious conduct can be made to appear benevolent compared to other people; (4) *Displacement of responsibility*: Self-censuring reactions are spared because people believe they are not the actual agent of their actions; (5) *Diffusion of responsibility*: Responsibility can be diffused when a group are engaging in the same behaviour; (6) *Distortion of consequences*: People can avoid facing the harm they cause or minimise it when one's conduct are ignored, minimized, distorted, or disbelieved; (7) *Dehumanization*: Self-censure reactions can be disengaged or blunted by stripping people of human qualities; and (8) *Attribution of blame*: Victims get blamed for bringing suffering on themselves and self-exoneration is achieved by viewing one's harmful conduct as forced by circumstances rather than as a personal decision.

In recent years, various studies have indicated the role MD mechanisms play in facilitating violent, antisocial and inhuman behaviours, in particular: (a) aggression, antisocial behaviour and delinquency in children and adolescents (Bandura et al., 1996; Hyde, Shaw, & Moilanen, 2010; Paciello, Fida, Tramontano, Lupinetti, & Caprara, 2008); (b) bullying (Obermann, 2011a, 2011b); (c) cyber-harassment (Pornari & Wood, 2010); (d) harassment in prisons (South & Wood, 2006); (e) terrorism (Bandura, 2004); (f) capital punishment (Vollum & Buffington-Vollum, 2010); (g) war and other military operations (McAlister, Bandura, & Owen, 2006); and (h) unlawful destruction of the environment and harmful industrial activities (White, Bandura, & Vero, 2009). On the other hand, some studies have shown significant negative relationships between MD and empathy (Detert, Treviño, & Sweitzer, 2008; Paciello, Fida, Cerniglia, Tramontano, & Cole, 2013).

Although the link between MD and violence had already been pointed out in studies conducted in the last century (e.g., Bandura, Underwood, & Fromson,

1975), the publication of the *Mechanisms of Moral Disengagement Scale* (MMDS; Bandura et al., 1996) made it possible to further develop this construct, as well as promoting its subsequent investigation. The original scale was developed to assess children's proneness to moral disengagement in diverse contexts and interpersonal relationships (Bandura et al., 1996). Each of the eight mechanisms of moral disengagement was represented by a subset of four items. The results of this research on an Italian sample of 799 children also revealed that moral disengagement fosters detrimental conduct by reducing prosocial behaviour and promoting cognitive and affective reactions conducive to aggression. The factorial structure, reliability, and correlates of the MMDS have also been analyzed in American and Danish samples (Obermann, 2011b; Pelton, Gound, Forehand, & Brody, 2004). On the one hand, Pelton and colleagues (2004) extended the investigation conducted by Bandura et al. (1996) to an American sample of children and their results showed that the MMDS displayed a similar factor structure, internal consistency, and demographic correlates. In addition, moral disengagement mediated partially between positive parenting and child delinquent behaviour. On the other hand, Obermann (2011b), using a 5-point Likert scale, examined the structure of MMDS and relations between moral disengagement and different positions in school bullying. Results of confirmatory factor analysis showed a one factor structure with a reasonable fit for the scale. Furthermore, results revealed that both pure bullies and bully-victims displayed higher moral disengagement than outsiders.

The evident relationship between MD and violence makes access to a version of the MMDS adapted to our context clearly justified. In the Spanish population this scale has only been used in some exploratory studies (Carrasco & Rubio-Garay, 2011; Rubio-Garay, Carrasco, & García-Rodríguez, in press), in which a significant correlation between MD and violence was found in adolescent dating relationships. The scale showed adequate general reliability (.78), although neither the psychometric properties of the scale nor its factorial structure were analysed. Consequently, the aim of this study is to analyse and review the structure, psychometric properties, and validity of the Spanish version of the MMDS in a sample of adolescents and young adults.

Method

Participants

The sample was composed of 513 subjects (41.7% males and 58.3% females) aged 15 to 25 years (average

age 18.43; standard deviation 2.72). The 62.5% of participants were adolescents (15-18 years-of-age) and the 37.5% were young adults. The participants were selected using non-probability sampling (convenience sample) at various educational centres.

Instruments

Mechanisms of Moral Disengagement (MMDS; Bandura et al., 1996). The scale was developed in order to evaluate the *moral disengagement* construct and to analyse how it affects violent and transgressive behaviour, either directly or indirectly, using other constructs that lead to aggression (e.g., blame, prosocial orientation, emotional reactions, etc.). The original instrument consists of 32 items (see Table 1) with a 3-point Likert scale. The instrument is composed of four-item subscales, each of which corresponds to the aforementioned eight MD mechanisms. From these scales, partial scores as well as an aggregated score can be obtained. However, following the study of Danish version of MMDS (Obermann, 2011b) and the longitudinal research on stability and change of moral disengagement (Paciello et al. 2008), a 5-point Likert scale can be used. Moreover, other studies show a number of categories higher than three in a Likert scale increases the variability of responses to the items, and reliability and validity of the measure (Lee & Paek, 2014; Lozano, García-Cueto, & Muñiz, 2008; Preston & Coman, 2000). According to this previous research, a 5-point Likert scale has been used in this study: 1 (totally disagree), 2 (disagree more than agree), 3 (neither agree nor disagree), 4 (agree more than disagree), and 5 (totally agree). The scale enables us to obtain a general composite MD score and eight partial scores, one for each MD mechanism: *moral justification* (e.g., «it is alright to fight for your friends»), *euphemistic language* (e.g., «assaulting someone is just a game»), *advantageous comparison* (e.g., «damaging some property is no big deal when you consider that others do worse»), *displacement of responsibility* (e.g., «if people are living in poor conditions they are not responsible for attacking»), *diffusion of responsibility* (e.g., «a kid in a gang should be not responsible for the problems gang causes»), *distortion of consequences* (e.g., telling small lies don't really do any harm»), *attribution of blame* (e.g., «the fights and misbehaviors at school are teacher's fault») and *dehumanization* (e.g., «some people are like animals»).

As far as its psychometric properties are concerned, the general reliability of the instrument, estimated using Cronbach's alpha coefficient, ranged from .82 to .93 in different studies (Bandura et al., 1996; Bandura, Caprara, Barbaranelli, Pastorelli, & Regalia, 2001; Pelton et al., 2004; Obermann, 2011a, 2011b), and the

correlations between the scores and different behaviours provide important evidence that support the validity of the construct. The authors of the original scale indicated a single-factor structure, which explained 16.2% of the variance, there being no evidence of the emergence of subfactors. The Spanish version of MMDS is included in Appendix 1.

Aggression Questionnaire (AQ; Buss & Perry, 1992); Spanish version by Andreu, Peña, & Graña (2002). It has often been employed to evaluate aggressive behaviour in adolescents and young adults and in the detection of aggressive individual in general populations (Andreu et al., 2002). Specifically, it allows us to obtain two measurements of aggression (*physical aggression* and *verbal aggression*) and two emotions associated with aggressive behaviours, such as *anger* and *hostility* (Andreu et al., 2002). The questionnaire consists of 29 items to evaluate behavioural, cognitive and emotional aspects of aggression, scored on a 5-point Likert scale: 1 = not at all like me; 2 = a little like me; 3 = somewhat like me; 4 = very much like me; 5 = completely like me). The instrument has been shown to be psychometrically reliable and to display a strong overall internal consistency, both in its original version ($\alpha = .89$) and in its Spanish version ($\alpha = .88$). In the sample studied here the overall reliability estimated by means of Cronbach's alpha coefficient was .89, and the following reliability coefficients were obtained for the different subscales: physical aggression (.87); verbal aggression (.72); anger (.74); and hostility (.74).

Interpersonal Reactivity Index (IRI; Davis, 1980); Spanish version by Mestre, Frías, & Samper (2004). It is one of the questionnaires more used to assess the empathy from a cognitive and emotional perspective. The original version consists of 28 items assessed with a 5-point Likert scale, from 5 (describes me very well) to 1 (does not describe me well) and is structured into four subscales: *perspective-taking* ($\alpha = .71$); *fantasy* ($\alpha = .78$); *empathic concern* ($\alpha = .68$); and *personal distress* ($\alpha = .77$). In the Spanish version (Mestre et al., 2004), the reliability ranged from .56 (perspective-taking) to .70 (fantasy). For the study sample, the overall reliability estimated was ($\alpha = .74$); perspective-taking ($\alpha = .66$); fantasy ($\alpha = .61$); empathic concern ($\alpha = .54$); and personal distress ($\alpha = .61$).

Procedure

Initially, the MMDS was translated to English and back translated to Spanish by the authors of this paper and a native English psychologist. The final version of the scale was discussed between Spanish and English

Table 1. Items of the Spanish version of Mechanisms of Moral Disengagement Scale (MMDS-S)

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1. It is alright to fight for your friends.
 2. Assaulting someone is just a game.
 3. Damaging some property is no big deal when you consider that others do worse.
 4. A kid in a gang should is not responsible for the problems gang causes.
 5. If people are living in poor conditions they are not responsible for attacking.
 6. Telling small lies don't really do any harm.
 7. Some people are like animals.
 8. The fights and misbehaviors at school are teacher's fault.
 9. It is okay to beat someone insults you.
 10. To hit obnoxious classmates is just giving them «a lesson».
 11. Stealing some money is not too serious compared to political corruption.
 12. A kid who only suggests breaking rules should not be blamed if other kids truly do it.
 13. If kids are not disciplined, it is not his fault.
 14. Children do not mind being teased because it shows interest in them.
 15. It is okay to mistreat some people.
 16. If people are careless where they leave their things it is their own fault if they get stolen.
 17. A fight is justified when your group's honour is threatened.
 18. Taking someone's bicycle without their permission is just «borrowing it».
 19. It is better an insult than a physical aggression.
 20. If a group decides together to do something harmful the responsibility lies with the entire group.
 21. Kids cannot be blamed for using bad words like everyone.
 22. Teasing someone does not really hurt them.
 23. Someone who is obnoxious does not deserve to be treated like a human being.
 24. Some people deserve to be mistreated by their actions.
 25. It is alright to lie to keep protecting your friends.
 26. It is not a bad thing to «get high» once in a while.
 27. Compared to injustices in the world, taking some things from a store without paying for them is not very serious.
 28. When a gang hurt someone, each child must answer for his guilt.
 29. Kids cannot be blame for misbehaving if their friends pressured them to do it.
 30. Insults among children do not matter.
 31. People without feelings deserve to be treated roughly.
 32. Children are not at fault for misbehaving if their parents force them too much.
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Note. Items have been adapted from the original scale (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996). For the purpose of this study, content of items is reproduced in this table with permission of the authors.

expert native psychologists. After that, an exploratory study was carried out on a small sample to ascertain whether it was suitable for our population. We then selected a large sample of candidates from secondary and higher education centres in different cities of Spain who were required to present the corresponding authorization and informed consent. Parents were asked to provide this authorization when the participants were

minors. The assessment was carried out by psychologists in small class groups during the normal school timetable. Participation was voluntary and anonymous.

Data analysis

The dimensionality of the Spanish MMDS was analysed by applying different confirmatory factor

analyses (CFAs), evaluating and comparing four models that complied with theoretical proposals (Bandura et al., 1996; Caprara et al., 1996; Paciello et al., 2008) and statistical criteria (i.e. Lorenzo-Seva & Ferrando, 2007): A first-order factor (*Model 1*) corresponding to the MD dimension or, instead, a second-order (MD) factor that included eight first-order dimensions (*Model 2*) or three first-order dimensions (*Models 3 and 4*). The Model 3 takes the 32 items as observed variables and the Model 4 takes the eight subscales of the MMDS-S as observed variables. Because of the ordinal nature of the items, we used polychoric correlations and unweighted least squares (ULS) as an estimation method. The evaluation and comparison of the four models was performed by calculating the χ^2 as well as other absolute and incremental fit indices (Hu & Bentler, 1999): root mean squared error of approximation (RMSEA < .06 to .08 with confidence interval); goodness of fit index (GFI \geq .95); adjusted GFI (AGFI \geq .95); expected cross validation index (ECVI, smaller the better for comparison) and comparative Akaike information criterion (CAIC, smaller the better for comparison). Scale reliability was analysed using Cronbach's alpha. Pearson correlations were carried out to analyse the factor intercorrelations and the relations between moral disengagement, aggression and empathy. The analyses were performed using the programmes SPSS 17.0, FACTOR 8.02 (Lorenzo-Seva & Ferrando, 2007) to explore the potential structure, and LISREL 8.71 (Jöreskog & Sörbom, 1996a, 1996b) in order to test and compare the four structural models through

CFA. The sequence of the analysis was the following: 1) CFA to test the theoretical models according to Bandura (Models 1 and 2); 2) Because of the low reliability of some first-order factors of the Model 2, an exploratory factor analysis was performed through FACTOR program; 3) Following the semi-confirmatory results in the step 2, two new structures were tested by CFA; and 4). The four models (1, 2, 3, and 4) were compared to each other.

Results

Confirmatory factor analysis of the Spanish version of MMDS

Four models were tested and compared each other by CFA: two of them were obtained according to the Bandura's Theory (Model 1 and Model 2) and the other two models (Models 3 and 4) were built following the semi-confirmatory indexes suggested by the results obtained by the FACTOR program. As we can see below, Models 1 and 2 showed an acceptable fit, however the reliability of some of the obtained factors were not appropriated. For these reasons, Models 3 and 4 were also tested. The four structural models of the MMDS-S showed an acceptable fit (Table 2), both a first-order factorial structure (Model 1) and a second-order factorial structure (Models 2, 3 and 4). The completely standardized solution of Models 1, 2 and 3 is presented in Table 3.

Table 2. Fit indices of Models 1, 2, 3 and 4

	RMSEA	GFI	AGFI	ECVI	CAIC	χ^2	d.f.	$\Delta\chi^2$	Δ d.f.
Model 1: one-factor model	.068	.93	.92	3.30	2029.83	1559.21	463		
Model 2: one second-order factor (MD) + eight first-order factors	.057	.94	.93	2.67	1745.32	1224.02	456	335.19	7
Model 3: one second-order factor (MD) + three first-order factors ^a	.048	.95	.94	2.20	1479.27	994.18	461	565.03	2
Model 4: one second-order factor (MD) + three first-order factors ^b	.016	.99	.98	.11	156.92	19.35	17	1539.86	446

Note. AGFI = adjusted GFI; CAIC = comparative Akaike information criterion; ECVI = expected cross validation index; GFI = goodness of fit index; MD = moral disengagement; RMSEA = root mean squared error of approximation. ^a = observed variables are the 32 items of the scale; ^b = observed variables are the eight subscales of the MMDS-S.

Although the fit indices for the three second-order models were acceptable and considerably better than the one-dimensional structure (Model 1), Model 4 is that with the best fit. This model indicates the existence of a second-order factor (moral disengagement), comprised of three first-order factors, which is coherent with what the FACTOR 8.02 programme

suggested: Factor I includes the dehumanization and attribution of blame mechanisms, which we have called disengagement by depersonalization; Factor II includes the advantageous comparison, displacement of responsibility and diffusion of responsibility mechanisms, known as disengagement by irresponsibility; and finally, Factor III, known

Table 3. MMDS-S: Completely standardized solution of Models 1, 2 and 3

Item	Model 1	Model 2								Model 3		
	FI	DH	AB	AC	DR	DiR	MJ	EL	DC	F1	F2	F3
7	.54	.69	---	---	---	---	---	---	---	.68	---	---
15	.67	.80	---	---	---	---	---	---	---	.77	---	---
23	.53	.68	---	---	---	---	---	---	---	.67	---	---
31	.62	.74	---	---	---	---	---	---	---	.71	---	---
8	.30	---	.28	---	---	---	---	---	---	---	.35	---
16	.51	---	.46	---	---	---	---	---	---	---	---	.54
24	.57	---	.52	---	---	---	---	---	---	.66	---	---
32	.46	---	.42	---	---	---	---	---	---	---	.55	---
3	.59	---	---	.66	---	---	---	---	---	.67	---	---
11	.47	---	---	.53	---	---	---	---	---	---	.57	---
19	.40	---	---	.45	---	---	---	---	---	---	---	.43
27	.50	---	---	.56	---	---	---	---	---	---	.60	---
5	.22	---	---	---	.30	---	---	---	---	---	.29	---
13	.34	---	---	---	.45	---	---	---	---	---	.43	---
21	.57	---	---	---	.77	---	---	---	---	---	.69	---
29	.39	---	---	---	.51	---	---	---	---	---	.48	---
4	.07	---	---	---	---	.14	---	---	---	---	.11	---
12	.42	---	---	---	---	.64	---	---	---	---	.51	---
20	.25	---	---	---	---	.39	---	---	---	---	.31	---
28	.38	---	---	---	---	.59	---	---	---	---	.48	---
1	.53	---	---	---	---	---	.62	---	---	---	---	.58
9	.65	---	---	---	---	---	.76	---	---	---	---	.70
17	.61	---	---	---	---	---	.71	---	---	---	---	.17
25	.51	---	---	---	---	---	.58	---	---	---	---	.55
2	.42	---	---	---	---	---	---	.41	---	---	---	.45
10	.67	---	---	---	---	---	---	.66	---	.77	---	---
18	.40	---	---	---	---	---	---	.40	---	---	.49	---
26	.42	---	---	---	---	---	---	.41	---	---	---	.45
6	.44	---	---	---	---	---	---	---	.51	---	---	.48
14	.39	---	---	---	---	---	---	---	.44	---	.44	---
22	.53	---	---	---	---	---	---	---	.61	---	---	.56
30	.64	---	---	---	---	---	---	---	.75	---	---	.69
MD	-	.77	.85	.88	.72	.62	.83	.95	.85	.76	.70	.97

Note. Model 1: one-factor (FI); Model 2: one second-order factor (MD) + eight first-order factors (DH = dehumanization; AB = attribution of blame; AC = advantageous comparison; DR = displacement of responsibility; DiR = diffusion of responsibility; MJ = moral justification; EL = euphemistic labelling; DC = distortion of consequences); Model 3: one second-order factor (MD) + three first-order factors (F1, F2 and F3).

as disengagement by rationalization, includes the mechanisms of moral justification, euphemistic labelling and distortion of consequences. In this CFA (Model 4), each of these eight MD mechanisms was

treated as an observable variable (the items pertaining to each MD mechanism can be seen in Table 3). This model is shown with the completely standardized factorial solution in Figure 1.

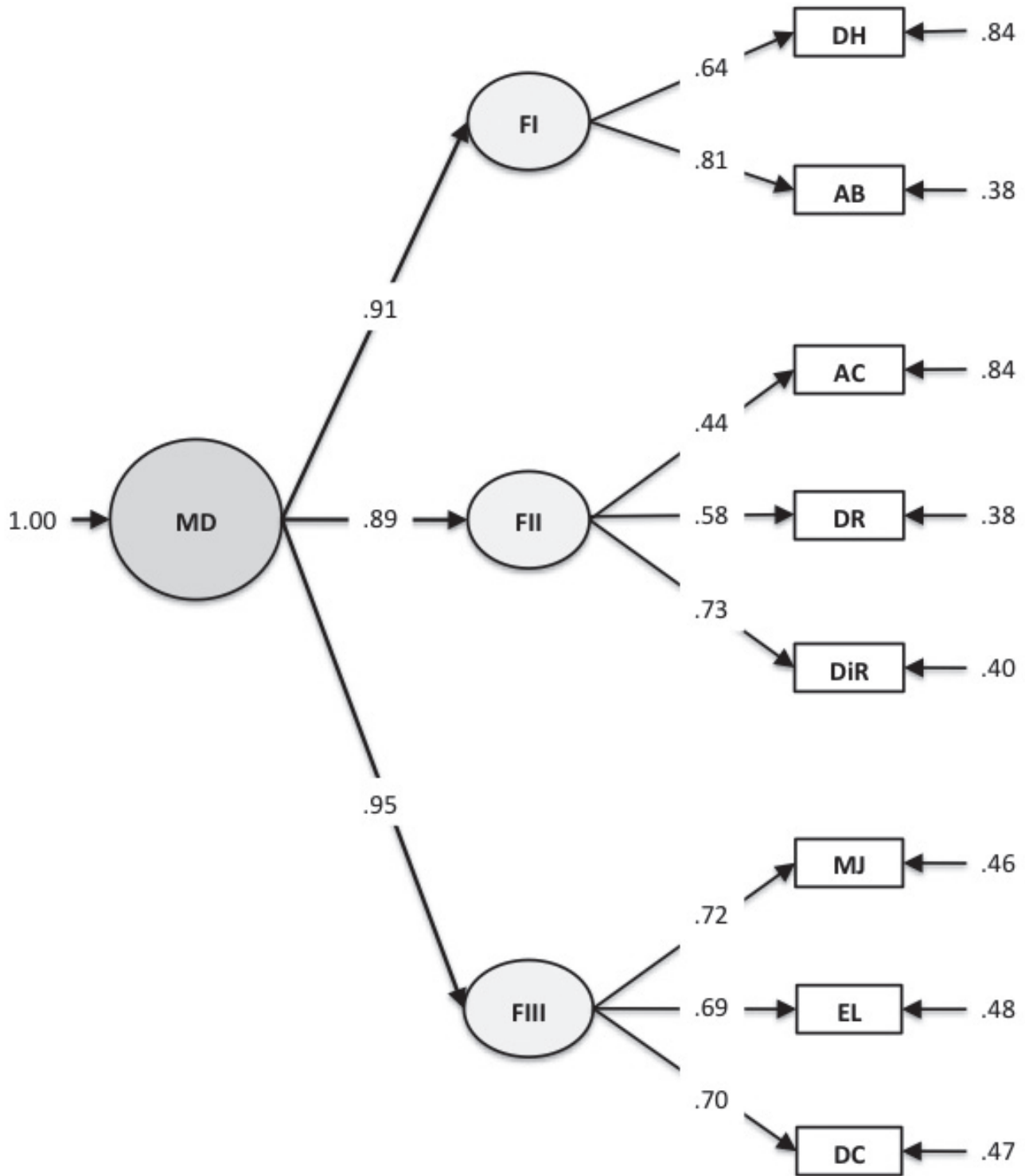


Figure 1. Spanish version of the Mechanisms of Moral Disengagement Scale (MMDS-S): completely standardized solution of the structural part of Model 4. MD = moral disengagement; FI = disengagement by depersonalization; FII = disengagement by irresponsibility; FIII = disengagement by rationalization; DH = dehumanization; AB = attribution of blame; AC = advantageous comparison; DR = displacement of responsibility; DiR = diffusion of responsibility; MJ = moral justification; EL = euphemistic labeling; DC = distortion of consequences.

Reliability, discrimination and correlations between all the factors of the Spanish version of the MMDS

The reliability of the MMDS-S is good for the total score of this scale and its magnitude is acceptable for both the three first-order dimensions of Models 3 and 4, as well as for two of the eight MD mechanisms (moral justification and dehumanization) (see Table 4). Although six of the eight subscales demonstrate poor reliability (i.e., euphemistic labelling, advantageous comparison, displacement of responsibility, diffusion of responsibility, distortion of consequences, attribution of blame) and taking into account the content of the items, these subscales reveal very interesting nuances in the analysis of attitudes to aggressive and violent behaviour; particularly euphemistic labelling, diffusion of responsibility and attribution of blame. In this regards, we draw attention to the presence of item 4 («a kid in a gang should is not responsible for the problems gang causes»), which shows weak loading in Models 1, 2 and 3, as well as

item 8 («the fights and misbehaviors at school are teacher's fault») and item 14 («children do not mind being teased because it shows interest in them») (see Table 3), the elimination of which from the scale would increase the reliability of the factors in Model 4 (FI: disengagement by depersonalization and FIII: disengagement by rationalization, respectively). On the other hand, strong correlations were found between the total MMDS score and the first-order factors of Model 4, which ranged from .82 to .88. In turn, the MD mechanisms that were most closely correlated with the total MMDS-S score were moral justification ($r = .74, p < .01$) and attribution of blame ($r = .76, p < .01$), and the one that showed the least correlation was diffusion of responsibility ($r = .54, p < .01$). Finally, although the intercorrelations between all the MD mechanisms were statistically significant, the correlations between diffusion of responsibility and the rest of the MD mechanisms were weak, ranging from .19 to .29, except for the displacement of responsibility mechanism ($r = .40, p < .01$).

Table 4. MMDS-S: Descriptive statistics, reliability and mean discrimination of the factors

	No. items	<i>M</i> (<i>SD</i>)	Reliability (Cronbach's α)	Mean discrimination (range)
Moral justification	4	9.87 (3.42)	.720	.51 (.36-.59)
Euphemistic labelling	4	7.94 (2.24)	.447	.25 (.23-.26)
Advantageous comparison	4	8.12 (2.91)	.570	.35 (.30-.40)
Displacement of responsibility	4	7.49 (2.68)	.519	.31 (.29-.34)
Diffusion of responsibility	4	9.35 (3.24)	.456	.26 (.17-.35)
Distortion of consequences	4	7.71 (2.74)	.587	.37 (.25-.49)
Attribution of blame	4	8.20 (2.81)	.404	.23 (.14-.29)
Dehumanization	4	6.45 (3.14)	.734	.53 (.46-.59)
F1 ^a	7	11.78 (5.03)	.810	.55 (.47-.61)
F2 ^a	14	27.28 (7.24)	.736	.34 (.16-.44)
F3 ^a	11	26.06 (7.16)	.799	.45 (.37-.53)
FI ^b	8	14.65 (5.22)	.731	.43 (.18-.54)
FII ^b	12	24.96 (6.65)	.703	.33 (.15-.43)
FIII ^b	12	25.52 (6.87)	.790	.43 (.23-.54)
Moral disengagement	32	65.12 (15.71)	.873	.31 (.11-.51)

Note. ^aThree first-order factors corresponding to Model 3; ^bThree first-order factors corresponding to Model 4.

Correlations between moral disengagement, aggression and empathy

In order to obtain other evidences of validity, they were conducted Pearson correlations analysis between the three first-order factors of MD (i.e. disengagement

by depersonalization, disengagement by irresponsibility, and disengagement by rationalization), the AQ scores (physical aggression, verbal aggression, hostility, and anger) and the IRI scores (perspective-taking, fantasy, empathic concern, and personal distress). As it can be seen in Table 5, high positive correlations were found

between all the dimensions of MD and the AQ total score ($r = .44, p < .01$; $r = .42, p < .01$; $r = .54, p < .01$). Furthermore, as we expected, significant negative

correlations were found between the three first-order factors of MD and the overall score of empathy ($r = -.22, p < .01$; $r = -.11, p < .05$; $r = -.25, p < .01$).

Table 5. Descriptive and Pearson's correlations for the variables of aggression, empathy and moral disengagement

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. AQ total score	—													
2. Physical aggression	.80**	—												
3. Verbal aggression	.74**	.49**	—											
4. Hostility	.69**	.31**	.35**	—										
5. Anger	.80**	.49**	.60**	.42**	—									
6. IRI total score	-.13**	-.28**	-.06	.08	-.06	—								
7. Perspective-taking	-.41**	-.36**	-.24**	-.28**	-.30**	.62**	—							
8. Fantasy	.04	-.07	.07	-.15**	.02	.74**	.19**	—						
9. Empathic concern	-.11**	-.24**	-.05	.02	-.01	.77**	.42**	.44*	—					
10. Personal distress	.16**	-.09	.07	.36**	.19**	.47**	-.04	.20**	.19**	—				
11. MMDS-S total score	.57**	.55**	.41**	.33**	.36**	-.23**	-.30**	-.11*	-.21**	.04	—			
12. Disengagement by depersonalization ^a	.44**	.49**	.30**	.12*	.07	-.22**	-.26**	-.01*	-.20**	-.01	.82**	—		
13. Disengagement by irresponsibility ^a	.42**	.36**	.31**	.18**	.12*	-.11*	-.15**	-.01*	-.13**	.01*	.84**	.52**	—	
14. Disengagement by rationalization ^a	.54**	.55**	.42**	.13**	.08	-.25**	-.35**	-.08	-.21**	-.01	.88**	.64**	.56**	—
<i>M</i>	73.91	18.40	13.67	22.42	19.42	90.95	24.13	23.24	29.02	14.56	64.42	14.54	24.64	25.24
<i>SD</i>	16.98	7.42	3.74	5.84	5.26	12.35	5.03	5.56	4.11	4.18	16.78	5.45	7.07	7.26

Note. AQ = Aggression Questionnaire; IRI = Interpersonal Reactivity Index; MMDS-S = Mechanisms of Moral Disengagement Scale-Spanish version.

^a = Three first-order factors corresponding to Model 4. $p < .05$; ** $p < .01$

Discussion

The aim of this study was to analyse the dimensionality of the MMDS-S and determine its basic psychometric properties in the Spanish adolescent and young adult population. The results indicate that the Spanish version of the MMDS represents a reliable and valid measure to assess the moral disengagement construct in young people aged 15 to 25. The different models hypothesized and analysed by means of CFA showed adequate indices of fit and therefore, they suggest a multidimensional structure compatible with a first and second-order factorial structure. The first-order factor solution is consistent with previous studies that identified a one-dimensional structure for the MD construct (Bandura et al., 1996; Caprara et al., 1996; Paciello et al., 2008). Nevertheless, these results also identify alternative multidimensional second-order structures with an adequate fit to the data. These structures represent a new contribution to the conceptualization of the MD construct, which makes a qualitatively more versatile, varied and detailed analysis of these processes possible. In addition, the new validated

structures support the definition of different mechanisms that are in accordance with the theoretical description proposed previously (Bandura et al., 1996) and this transcends the unitary notion of MD.

Of all the hypothesized models, that with the best goodness of fit indices was Model 4. This model proposes a general second-order factor which is compatible with the MD construct as a whole and it includes three first-order dimensions which in turn include the eight MD mechanisms proposed by Bandura et al. (1996): Factor I: disengagement by depersonalization; Factor II: disengagement by irresponsibility; and Factor III: disengagement by rationalization. In turn, this grouping of the first-order dimensions with the different MD mechanisms is strongly coherent with the social cognitive theory proposed by Bandura (1986, 1990, 2002) as to how MD mechanisms are activated or deactivated throughout the self-regulation process, and it allows a more versatile use of dimensions or processes of greater or lesser specificity.

These results confirm that the MMDS-S is a reliable instrument for measuring MD (second-order factor) with

high internal consistency, as demonstrated elsewhere (Bandura et al., 1996; Paciello et al., 2008). Its reliability is also of acceptable magnitude for the three first-order factors (FI: disengagement by depersonalization; FII: disengagement by irresponsibility; and FIII: disengagement by rationalization) and for two of the eight MD mechanisms (moral justification and dehumanization). Despite this, three of the six remaining MD mechanisms (advantageous comparison, displacement of responsibility and distortion of consequences) show values higher than .30 in the mean discrimination (Nunnally & Bernstein, 1994). Conversely, the mechanisms of euphemistic labelling, diffusion of responsibility and attribution of blame are less reliable and have a lower mean discrimination. Possibly the poor reliability when evaluating these MD mechanisms is related to the small number of items that each includes ($n = 4$) and the substantive formulation of some of them (i.e.: items 4, 8 and 14). Nevertheless, we decided to maintain the eight MD mechanisms and the rest of the factors, given the qualitative and substantive diversity they contribute to the analysis of MD processes, and their potential correlation with aggressive and violent behaviour (Bandura et al., 1996; Obermann, 2011a, 2011b; Paciello et al., 2008; Zuñeda, Llamazares, Marañón, & Vázquez, 2016).

Besides the factorial construct validity, the significant correlations between second-order factors of MD and external criteria such as aggression and empathy scores in this study provide validity evidences for the MMDS-S. These results are consistent with the previous studies that have shown the direct and significant relationship between MD and aggression (Bandura et al., 1996; Bandura et al., 2001; Paciello et al., 2008) and negative relationships between MD and empathy (Detert et al., 2008; Paciello et al., 2013).

Finally, this study has certain limitations. Firstly, MMDS-S is a self-report measure and may be biased by the social desirability of the informants, which would need to be compared in future studies with measurements from external informers. Secondly, some of the first-level scales have shown moderate or poor reliability, suggesting that the content of some of the items should be reformulated to adapt it more accurately to our cultural context (Hambleton, 2005) and the level of understanding of the informants (e.g., items 4, 8, 14). Until then, these first-level scales should be used with caution in preference to the more general second-level (disengagement by depersonalization; disengagement by irresponsibility; disengagement by rationalization) and third-level (moral disengagement) dimensions. Finally, this scale has been validated for a heterogeneous group

of age so its conclusions must be limited to this group. This group includes adolescents and young adults that might show both, different moral development as well as different moral disengagement mechanisms. Future studies will have to consider these limitations when using the scale and explore the behaviour of MD mechanisms in different age and gender groups. In addition, it will also be necessary to study how moral processes are related, and their differential and predictive links to behaviours that potentially appear to be influenced by a moral attitude, such as prosocial or violent behaviour.

Conflicts of interest

Authors declare there are no conflicts of interest

References

- Andreu, J. M., Peña, M. E., & Graña, J. L. (2002). Adaptación psicométrica de la versión española del Cuestionario de Agresión. *Psicothema*, *14*, 476-482.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1990). Selective activation and disengagement of moral control. *Journal of Social Issues*, *46*, 27-46.
- Bandura, A. (1999). Moral disengagement in the perpetration of inhumanities. *Personal and Social Psychology Review*, *3*, 193-209.
- Bandura, A. (2002). Selective moral disengagement in the exercise of moral agency. *Journal of Moral Education*, *31*, 101-119.
- Bandura, A. (2004). The role of selective moral disengagement in terrorism and counterterrorism. In F. M. Moghaddam & A. J. Marsella (Ed.), *Understanding terrorism: Psychological roots, consequences and interventions* (pp. 121-250). Washington, DC: American Psychological Association Press.
- Bandura, A., Barbaranelli, C., Caprara, G. V., & Pastorelli, C. (1996). Mechanisms of moral disengagement in the exercise of moral agency. *Journal of Personality and Social Psychology*, *71*, 364-374.
- Bandura, A., Caprara, G. V., Barbaranelli, C., Pastorelli, C., & Regalia, C. (2001). Sociocognitive self-regulatory mechanisms governing transgressive behaviour. *Journal of Personality and Social Psychology*, *80*, 125-135.
- Bandura, A., Underwood, B., & Fromson, M. E. (1975). Disinhibition of aggression through diffusion of responsibility and dehumanization of victims. *Journal of Research in Personality*, *9*, 253-269.
- Buss, A. H., & Perry, M. (1992). The Aggression Questionnaire. *Journal of Personality and Social Psychology*, *63*, 452-459.
- Carrasco, M. A., & Rubio-Garay, F. (2011, febrero). *Desconexión moral y violencia en el noviazgo: un estudio con adolescentes y jóvenes* [Moral disengagement and dating violence: a study with youths and adolescents] Poster presentation at the I Forum of New Psychology Investigators at the UNED (Universidad Nacional de Educación a Distancia), Madrid, Spain.

- Davis, M.H. (1980). A multidimensional Approach to Individual Differences in Empathy. *JSAS Catalog of Selected Documents in Psychology*, 10, 85.
- Detert, J. R., Treviño, L. K., & Sweitzer, V. L. (2008). Moral disengagement in ethical decision making: A study of antecedents and outcomes. *Journal of Applied Psychology*, 93, 374-391.
- Hambleton, R. K. (2005). Issues, designs, and technical guidelines for adapting tests into multiple languages and cultures. In R. K. Hambleton, P. Merenda, & C. Spielberger (Eds.), *Adapting educational and psychological tests for cross-cultural assessment* (pp. 3-38). Mahwah, NJ: Lawrence Erlbaum Associates.
- Hu, L., & Bentler, P. M. (1995). Evaluation model fit. In R. H. Hoyle (Eds), *Structural equation modeling: Concepts, issues, and applications* (pp.76-99). Thousand Oaks, CA: Sage.
- Hyde, L. W., Shaw, D. S., & Moilanen, K. L. (2010). Developmental precursors of moral disengagement and the role of moral disengagement in the development of antisocial behavior. *Journal of Abnormal Child Psychology* 38, 197-209.
- Jöreskog K. G., & Sörbom D. (1996a). *LISREL 8: User's reference guide*. Chicago, IL: Scientific Software International.
- Jöreskog K. G., & Sörbom, D. (1996b). *PRELIS 2: User's reference guide*. Chicago, IL: Scientific Software International.
- Kohlberg, L. (1984). *The psychology of moral development* (Vol. 2). New York, NY: Harper & Row.
- Lee, J., & Paek, I. (2014). In Search of the Optimal Number of Response Categories in a Rating Scale. *Journal of Psychoeducational Assessment*, 32, 663-673.
- Lorenzo-Seva, U., & Ferrando, P. J. (2007). *FACTOR: A computer program to fit the exploratory factor analysis model*. Tarragona, Spain: University Rovira y Virgili.
- Lozano, L. M., García-Cueto, E., & Muñoz, J. (2008). Effect of the number of response categories on the reliability and validity of rating scales. *Methodology: European Journal of Research Methods for the Behavioral and Social Sciences*, 4(2), 73-79.
- McAlister, A. L., Bandura, A., & Owen, S. V. (2006). Mechanisms of moral disengagement in support of military force: The impact of September 11. *Journal of Social and Clinical Psychology*, 25, 141-166.
- Mestre, V., Frias, M. D., & Samper, P. (2004). La medida de la empatía: Análisis del Interpersonal Reactivity Index. *Psicothema*, 16, 255-260.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York, NY: McGraw-Hill.
- Obermann, M. L. (2011a). Moral disengagement among bystanders to school bullying. *Journal of School Violence*, 10, 239-257.
- Obermann, M. L. (2011b). Moral disengagement in self-reported and peer-nominated school bullying. *Aggressive Behavior*, 37, 133-144.
- Paciello, M., Fida, R., Cerniglia, L., Tramontano, C., & Cole, E. (2013). High cost helping scenario: The role of empathy, prosocial reasoning and moral disengagement on helping behavior. *Personality and Individual Differences*, 55, 3-7.
- Paciello, M., Fida, R., Tramontano, C., Lupinetti, C., & Caprara, G. V. (2008). Stability and change of moral disengagement and its impacts on aggression and violence in late adolescence. *Child Development* 79, 1288-1309.
- Pelton, J., Gound, M., Forehand, R., & Brody, G. (2004). The Moral Disengagement Scale: Extension with an American minority sample. *Journal of Psychopathology and Behavioral Assessment*, 26, 31-39.
- Piaget, J. (1932). *The moral judgment of the child*. London: Routledge and Kegan.
- Pornari, C. D., & Wood, J. (2010). Peer and cyber aggression in secondary school students: The role of moral disengagement, hostile attribution bias, and outcome expectancies. *Aggressive Behavior*, 36, 81-94.
- Preston, C.C., & Colman, A.M. (2000). Optimal number of response categories in rating scales: Reliability, validity, discriminating power, and respondent preferences. *Acta Psychologica*, 104(1), 1-15.
- Rubio-Garay, F., Carrasco, M. A., & García-Rodríguez, B. (in press). Moral disengagement and violence in adolescent and young dating relationships: A correlational study. *Revista Argentina de Clínica Psicológica*.
- South, C. R., & Wood, J. (2006). Bullying in Prisons: The Importance of Perceived Social Status, Prisonization, and Moral Disengagement. *Aggressive Behavior*, 32, 490-501.
- Vollum, S., & Buffington-Vollum, J. (2010). An examination of social-psychological factors and support for the death penalty: Attribution, moral disengagement, and the value-expressive function of attitudes. *American Journal of Criminal Justice*, 35, 15-36.
- White, J, Bandura, A., & Bero, L. A. (2009). Moral disengagement in the corporate world. *Accountability in Research*, 16, 41-74.
- Zuñeda, A., Llamazares, A., Marañón, D., & Vázquez, G. (2016). Características individuales y familiares de los adolescentes en violencia filio-parental: la agresividad física, la cohesión familiar y el conflicto interparental como variables explicativas. *Revista de Psicopatología y Psicología Clínica*, 21, 21-33.

Appendix 1. Versión en español de la Escala de Mecanismos de Desconexión Moral

	1	2	3	4	5
	Totalmente en desacuerdo	Más en desacuerdo que de acuerdo	Ni de acuerdo ni en desacuerdo	Más de acuerdo que en desacuerdo	Totalmente de acuerdo
<i>Ítems</i>					<i>Valoración</i>
1. Está bien pelear por tus amigos.					1 2 3 4 5
2. Agredir a alguien es solo un juego.					1 2 3 4 5
3. Dañar alguna propiedad no es gran cosa si se considera que otros hacen cosas peores.					1 2 3 4 5
4. Un chico que pertenece a una pandilla no puede ser culpado por los problemas causados por la pandilla.					1 2 3 4 5
5. Si las personas viven en malas condiciones no pueden ser culpados por agredir.					1 2 3 4 5
6. Decir pequeñas mentiras realmente no hace daño.					1 2 3 4 5
7. Algunas personas son como animales.					1 2 3 4 5
8. Las peleas y los malos comportamientos en la escuela son culpa del profesor.					1 2 3 4 5
9. Está bien golpear a alguien que te insulta.					1 2 3 4 5
10. Golpear a los compañeros de clase que son detestables es sólo darles una lección.					1 2 3 4 5
11. Robar algo de dinero no es demasiado grave comparado con la corrupción política.					1 2 3 4 5
12. Un chico que amenaza con romper las normas no debe ser culpado, si otros verdaderamente lo hacen.					1 2 3 4 5
13. Si los chicos no son disciplinados, no es por su culpa.					1 2 3 4 5
14. A los chicos no les importa que se burlen de ellos porque eso muestra interés por ellos.					1 2 3 4 5
15. Está bien tratar mal a algunas personas.					1 2 3 4 5
16. Si la gente no tiene cuidado de dónde deja sus cosas, si se las roban es culpa suya.					1 2 3 4 5
17. Está bien pelearse cuando el honor de tu grupo o pandilla es amenazado.					1 2 3 4 5
18. Coger la bicicleta de alguien sin su permiso es sólo una broma.					1 2 3 4 5
19. Es mejor insultar a los compañeros que pegarles.					1 2 3 4 5
20. Si un grupo de chicos decide conjuntamente hacer algo dañino, la responsabilidad recae en todo el grupo.					1 2 3 4 5
21. Los chicos no pueden ser culpados por decir tacos como todo el mundo.					1 2 3 4 5
22. Burlarse o quedarse con alguien, no es realmente hacerle daño.					1 2 3 4 5
23. Alguien detestable no merece ser tratado como un ser humano.					1 2 3 4 5
24. Algunas personas merecen ser maltratadas por las cosas que hacen.					1 2 3 4 5
25. Está bien mentir para proteger a tus amigos.					1 2 3 4 5
26. No está mal estar colocado de vez en cuando.					1 2 3 4 5
27. Comparado con las injusticias en el mundo, coger cosas de una tienda sin pagarlas no es demasiado grave.					1 2 3 4 5
28. Cuando una pandilla daña a alguien, cada chico debe responder por su culpa.					1 2 3 4 5
29. Los chicos no pueden ser culpados por comportarse mal si sus compañeros los presionan para que lo hagan.					1 2 3 4 5
30. Los insultos entre chicos no importan.					1 2 3 4 5
31. Las personas sin sentimientos merecen ser tratadas brutalmente.					1 2 3 4 5
32. Los chicos no tienen la culpa de comportarse mal si sus padres los fuerzan demasiado.					1 2 3 4 5