



The role of Type D personality in predicting moral disengagement among university students

Myoung Sun Jang^a, Sophia J. Chung^b, Haeyoung Lee^b, Sun Joo Jang^{c,*}

^a College of Nursing, Kyungdong University, Wonju, South Korea

^b Red Cross College of Nursing, Chung-Ang University, Seoul, South Korea

^c College of Nursing & the Research Institute of Nursing Science, Seoul National University, Seoul, South Korea

ARTICLE INFO

Keywords:

Moral disengagement
Type D personality
Cyber aggression
Sex differences
Negative affectivity

ABSTRACT

Moral disengagement among young people, a key mechanism underlying cyber aggression, has drawn scholarly attention. Understanding its relationship with personality traits may inform prevention and intervention strategies. This study examined the associations between Type D personality dimensions—negative affectivity and social inhibition—and moral disengagement and assessed whether these associations differed by sex. This secondary analysis was based on data from 400 South Korean undergraduates who participated in a larger study on cyber aggression. Participants completed the Type D Personality Scale-14 and the Moral Disengagement Scale and reported their internet use patterns, including gaming, communication, studying, shopping, and content consumption. Hierarchical regression analyses identified factors associated with moral disengagement. Among males, negative affectivity showed the strongest association, followed by gaming use, whereas social inhibition and the negative affectivity–social inhibition interaction were not significant. Among females, negative affectivity was significantly associated with moral disengagement, and the negative affectivity–social inhibition interaction was significant, whereas the main effect of social inhibition was not significant after including the interaction term. These findings suggest that negative affectivity, the affective dimension of Type D personality, may be a more important correlate of moral disengagement than social inhibition. Gaming use may also represent a relevant contextual factor for males. Overall, prevention and intervention strategies for moral disengagement among university students should consider negative affectivity, social inhibition, online activities such as gaming, and sex differences.

1. Introduction

Moral disengagement has garnered increasing attention owing to its association with various aggressive behaviors, including cyber aggression. Individuals adopt moral standards to guide behavior in alignment with their sense of satisfaction (Bandura, 1999). However, morality often diminishes in cyberspaces (Runions & Bak, 2015), enabling individuals to cause harm without feeling guilt through cognitive processes that bypass moral responsibility (Bandura, 1999). Moral disengagement is closely associated with aggressive behaviors in digital contexts and is therefore relevant to prevention efforts (Lo Cricchio et al., 2021).

Moral disengagement may also relate to Type D personality, which reflects a chronic tendency toward psychological distress (Denollet,

2000). Personality is an important individual-level antecedent of moral disengagement (Newman et al., 2020), which is grounded in moral self-regulation processes (Bandura, 1999). Type D personality comprises two dimensions: negative affectivity and social inhibition (Denollet, 2005). Negative affectivity reflects tendencies toward dysphoria, anxiety, irritability, self-criticism, and heightened sensitivity to stress (Denollet, 2000), whereas social inhibition is characterized by discomfort in social interactions and a tendency to avoid conflict in relationships (Denollet, 2000). The co-occurrence of these traits fosters heightened anger, cynicism, and hostility (Perbandt et al., 2006), psychological characteristics that contribute to the cognitive processes involved in moral disengagement (Bandura, 1999; Luo & Bussey, 2023).

Sex may further influence both moral disengagement and Type D personality. Prior research has reported that males aged 16–30 show

* Corresponding author at: College of Nursing & the Research Institute of Nursing Science, Seoul National University, 103 Daehak-ro, Jongno-gu, Seoul, 03080, South Korea.

E-mail addresses: msjang@kduniv.ac.kr (M.S. Jang), sjchung@cau.ac.kr (S.J. Chung), im0202@cau.ac.kr (H. Lee), ansley1@snu.ac.kr (S.J. Jang).

<https://doi.org/10.1016/j.actpsy.2026.107137>

Received 8 November 2025; Received in revised form 24 May 2026; Accepted 25 May 2026

Available online 26 May 2026

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higher levels of moral disengagement (Gómez Tabares, 2024). In addition, male college students with Type D personality have shown greater heart rate reactivity to social stressors than their female counterparts (Riordan et al., 2019). Emotion regulation strategies that moderate the link between moral disengagement and bullying behavior vary significantly by sex (Georgiou et al., 2022). In contrast, female students with Type D personality show blunted heart rate responses to stress-inducing tasks (Riordan et al., 2019). These findings suggest the need to further examine how negative affectivity and social inhibition are associated with moral disengagement, particularly in relation to sex-specific differences.

1.1. Theoretical background

1.1.1. Negative affectivity and moral disengagement

Negative affectivity refers to a stable dispositional trait characterized by frequent and intense experiences of negative emotions across diverse situations (Denollet, 2000). Emotions play a critical role in judgment and decision-making (Bechara et al., 2000). Negative affectivity may drive negatively biased interpretations of ambiguous stimuli (Neta & Brock, 2021). In particular, individuals prone to anger and frustration may interpret ambiguous situations as threatening through distorted patterns of social information processing (Crick & Dodge, 1994; Martinelli et al., 2018). Such interpretations may contribute to a hostile attribution bias and blame-oriented cognitive tendencies (e.g., self-blame and other-blame), which may increase the likelihood of aggressive responses (Behjame et al., 2021; Martinelli et al., 2018).

In addition, negative affectivity may influence moral regulation through self-regulatory resources. Upholding moral standards requires sustained self-regulatory capacity (Baumeister, 2014), and chronic emotional distress can deplete these resources (Baumeister, 2014). As a result, individuals may experience reduced capacity to activate internal moral self-sanctions against unethical conduct (Bandura, 1999). Collectively, these possible pathways—biased interpretations and reduced regulatory capacity—suggest that negative affectivity may function as an important vulnerability factor that facilitates the activation of moral disengagement.

1.1.2. Social inhibition and moral disengagement

Social inhibition manifests as a stable disposition to suppress emotional expression and behaviors within social interactions (Denollet, 2000). This tendency shares conceptual overlap with expressive suppression, which involves inhibiting outward emotional displays (Gross, 1998). Suppressing emotional expression may be related to lower emotional disclosure and less open interpersonal communication (Gross & John, 2003). This pattern may limit opportunities for interpersonal feedback relevant to moral self-regulation (Bandura, 1999). In the absence of such relational feedback, cognitive justifications related to moral disengagement may be less likely to be challenged (Bandura, 1999; Newman et al., 2020).

Further, patterns of interpersonal withdrawal and deliberate avoidance may diminish interpersonal engagement and opportunities for social connection and support (Denollet, 2000; Duijndam et al., 2024). Social connectedness, including empathic tendencies, may serve as a regulatory resource through social ties that help attenuate negativity bias (Neta & Brock, 2021). Elevated social inhibition, however, may weaken these social-regulatory resources by reducing social connectedness (Denollet, 2000). This diminished capacity to regulate negative impulses may sustain a state of automatic negativity (Neta & Brock, 2021).

When negative appraisals go unchallenged, individuals may become more prone to employing moral disengagement mechanisms such as displacement of responsibility and dehumanization (Bandura, 1999). Social inhibition may therefore represent a relational vulnerability factor that is relevant to moral disengagement.

1.1.3. Dimensional perspective on Type D personality and moral disengagement

Integrating theoretical views on negative affectivity and social inhibition suggests that the two dimensions of Type D personality may be related to moral disengagement through differential processes. Although Type D personality is defined by the combination of these two traits (Denollet, 2000), these dimensions appear empirically separable, with social inhibition showing distinct conceptual value beyond negative affectivity (Timmermans et al., 2019). Recent methodological work suggests that effects attributed to Type D personality should be evaluated by considering the main effects of both dimensions along with their interaction (Lodder, 2020). Converging evidence from affective bias research further shows that negative affect predicts more negative interpretations of ambiguous stimuli, whereas social connectedness predicts more positive interpretations (Neta & Brock, 2021).

Accordingly, we propose that negative affectivity may be related to moral disengagement through cognitive-emotional biases and reduced self-regulatory capacity. In contrast, social inhibition may be related to moral disengagement through reduced interpersonal feedback and social connectedness, which may limit interpersonal regulatory resources. Thus, examining these two traits as distinct but related dimensions may help clarify affective and interpersonal vulnerabilities in moral disengagement and inform more personalized, trait-specific intervention strategies.

1.2. The present study

Personality traits can change across adulthood, with emerging adulthood representing a period of particularly pronounced individual differences in trait change (Schwaba & Bleidorn, 2018). In this period, moral disengagement is a relevant concern, as it is strongly associated with aggression, peer bullying, and cyberbullying (Gini et al., 2014). University students, therefore, represent an important group for examining personality-related vulnerability. From an emotional development perspective, negative emotions may increase from adolescence into young adulthood (Martin-Krumm et al., 2018). Such emotional vulnerability during this developmental period may be reflected in the negative affectivity trait of Type D personality. Given the variation in moral disengagement across personality traits (Newman et al., 2020) and evidence that Type D-related traits may be modified through targeted interventions (Nyklíček et al., 2013), exploring how negative affectivity and social inhibition are associated with moral disengagement in young adults may have practical implications.

Internet use may further provide an important contextual factor in moral disengagement, particularly in South Korea, where internet use is highly prevalent in daily life (e.g., internet usage rate 94.5% and 90.5% of users accessing the internet at least once per day; Ministry of Science and ICT, 2024). Online environments may heighten vulnerability to moral disengagement through online disinhibition. A recent systematic review found that online disinhibition facilitates cyberbullying through moral disengagement and identified specific platform features that strengthen this relationship (Wang et al., 2024). Notably, asynchrony was identified as a more influential factor than anonymity. In this context, negative affectivity and social inhibition may be relevant to understanding how online characteristics are associated with moral disengagement. Different forms of online activity, such as gaming, communicating, learning, shopping, and streaming, may therefore exhibit distinct associations with moral disengagement and warrant simultaneous examination.

Building upon established sex differences in moral regulation and personality, this study examined the associations of the two dimensions of Type D personality—negative affectivity and social inhibition—and internet use patterns with moral disengagement among South Korean university students, with particular attention to sex differences. We also examined the interaction between negative affectivity and social inhibition. We analyzed data collected via an online survey. Based on the

theoretical framework outlined above, we proposed the following hypotheses:

- H1.** Negative affectivity will be positively associated with moral disengagement.
- H2.** Social inhibition will be positively associated with moral disengagement.
- H3.** Internet use patterns (gaming, communicating, learning, shopping, and streaming) will show differential associations with moral disengagement.
- H4a.** The associations of negative affectivity, social inhibition, and their interaction with moral disengagement will differ by sex.
- H4b.** The associations between internet use patterns and moral disengagement will differ by sex.

2. Methods

2.1. Study design

This study employed a cross-sectional secondary analysis.

2.2. Participants and data collection

Data were sourced from a previous study (Lee & Jang, 2023) in which an online survey was conducted in March 2022 with 400 university students, comprising 200 females and 200 males. In the previous study (Lee & Jang, 2023), the 400 participants were recruited through a flyer posted online, which included an explanation of the study and a link to a questionnaire. Participants voluntarily provided their biological sex during the survey. This variable was recorded as “sex” and categorized as “male” and “female” in the primary study. The inclusion criteria were: 1) being an undergraduate student of Korean nationality whose native language is Korean, and 2) enrolled as a freshman to senior student during the survey period. This previous study excluded 1) students on leave of absence and 2) individuals with prior psychiatric diagnoses or ongoing psychiatric treatment. G*Power software (version 3.1.9.2, Heinrich Heine-University, Düsseldorf, Germany) was used to determine a minimum required sample size of 178, based on a significance level of 0.01, power of 0.95, 11 predictor variables, and a medium effect size ($f^2 = 0.15$). Considering the 10% dropout rate typical of online surveys (Hoerger, 2010), a sample of 400 with even sex distribution was deemed sufficient.

2.3. Ethical considerations

The secondary analysis was approved by the Institutional Review Board affiliated with the researchers' institution (IRB No. [blinded for review], July 6, 2022).

2.4. Data analysis

Data were analyzed using SPSS Statistics software version 26.0 (IBM Corp., Armonk, NY, United States) and PROCESS Macro version 4.2. Descriptive statistics summarized participants' general characteristics, Type D personality traits, and moral disengagement levels. Differences in moral disengagement by participant characteristics were assessed using *t*-tests and one-way analysis of variance. Pearson's correlation analysis was conducted to evaluate relationships between variables. Hierarchical regression analyses were conducted separately by sex to identify factors influencing moral disengagement. Variables identified as significant in the univariate and correlation analyses were entered into the regression models: covariates in Model 1; main effects of negative affectivity and social inhibition in Model 2; and their interaction term in Model 3. Moderation analyses were performed using

PROCESS Macro (Model 1) with mean-centered variables. Multicollinearity was assessed using the variance inflation factor (VIF) values. Residual normality and homoscedasticity were analyzed using the Kolmogorov-Smirnov and Koenker tests, respectively. Statistical significance was set at $p < .05$.

2.5. Measures

2.5.1. General characteristics and internet use patterns

Participants reported general characteristics (age, school year, major, living arrangement, socioeconomic status, and health status) and internet use patterns (e.g., gaming, communication, studying, shopping, and content consumption) using a 5-point Likert scale (1 = none at all, 5 = very frequently).

2.5.2. Type D personality

Type D personality was measured using the Korean version of the Type D Personality Scale-14 (Lim et al., 2011), adapted from Denollet's (2000) original tool. This self-report questionnaire consists of 14 items rated on a 5-point Likert scale (0 = not at all, 4 = very much), divided into two subscales: negative affectivity and social inhibition. Scores range from 0 to 56, with higher scores indicating stronger Type D traits. The original scale showed Cronbach's α values between 0.82 and 0.88, while the Korean version showed values between 0.80 and 0.86. In this study, Cronbach's α ranged from 0.89 to 0.90 for male participants (0.93 for all items) and 0.88 to 0.89 for female participants (0.92 for all items).

2.5.3. Moral disengagement

Moral disengagement was assessed using the Korean version (Youn, 2014) of the Moral Disengagement Scale for Adults (Detert et al., 2008). This instrument includes 32 items across eight dimensions (moral justification, euphemistic labeling, advantageous comparison, displacement of responsibility, diffusion of responsibility, distortion of consequences, attribution of blame, and dehumanization), rated on a 5-point Likert scale (1 = not at all, 5 = very much). Total scores range from 32 to 160. Cronbach's α values were 0.80 for the original scale (Detert et al., 2008) and 0.82 for the Korean version (Youn, 2014). In this study, Cronbach's α values ranged from 0.79 to 0.81 (0.91 for all items) for male participants and 0.71 to 0.79 (0.87 for all items) for female participants.

3. Results

3.1. Participant characteristics

The average age of male participants was 23.23 years (SD 2.00). Of these, 76 were seniors (38.0%), 101 were science or engineering majors (50.5%), 131 lived with at least one other person (65.5%), 82 were classified as middle socioeconomic status (SES; 41.0%), and 108 reported good health (54.0%). Internet use for shopping had the lowest mean score at 2.77 points (SD 0.93). Type D personality scores averaged 11.00 (SD 5.99) for negative affectivity, 11.16 (SD 5.67) for social inhibition, and 74.12 (SD 17.09) for moral disengagement (Table 1).

The average age of female participants was 22.06 years (SD 1.68). Among them, 78 were seniors (39.0%), 74 were humanities or social science majors (37.0%), 134 lived with at least one other person (67.0%), 98 were classified as middle SES (49.0%), and 94 reported good health (47.0%). Internet use for gaming had the lowest mean score at 2.46 (SD 1.24). Type D personality scores averaged 11.73 (SD 5.81) for negative affectivity, 11.92 (SD 5.79) for social inhibition, and 73.47 (SD 13.66) for moral disengagement (Table 1).

3.2. Moral disengagement according to participants' characteristics

Moral disengagement scores did not differ significantly by year of study, major, living arrangement, SES, or health status among male or

Table 1General characteristics, Type D personality, and moral disengagement ($N = 200$).

Variables	Categories	Male students		Female students	
		n (%)	M (SD)	n (%)	M (SD)
Age (year)			23.23(2.00)		22.06(1.68)
Year of study	1st	8(4.0)		5(2.5)	
	2nd	52(26.0)		47(23.5)	
	3rd	64(32.0)		70(35.0)	
	4th	76(38.0)		78(39.0)	
Major	Humanities and social sciences	67(33.5)		74(37.0)	
	STEM	101(50.5)		67(33.5)	
	Others	32(16.0)		59(29.5)	
Habitation	Living alone	69(34.5)		66(33.0)	
	Living with someone	131(65.5)		134(67.0)	
Socioeconomic status	Low	67(33.5)		38(19.0)	
	Middle	82(41.0)		98(49.0)	
	High	51(25.5)		64(32.0)	
Health status	Bad	21(10.5)		29(14.5)	
	Moderate	71(35.5)		77(38.5)	
	Good	108(54.0)		94(47.0)	
Degree of internet use for	Gaming		3.18(1.15)		2.46(1.24)
	Communicating		3.20(0.78)		3.36(0.77)
	Learning		3.31(1.10)		3.02(1.27)
	Shopping		2.77(0.93)		3.08(1.00)
	Streaming (e.g., Netflix)		4.30(0.70)		4.26(0.83)
Type D personality	Negative affectivity		11.00(5.99)		11.73(5.81)
	Social inhibition		11.16(5.67)		11.92(5.79)
Moral disengagement			74.12(17.09)		73.47(13.66)

Note. M = mean; SD = standard deviation; STEM = science, technology, engineering, and mathematics; Others = departments of art, physical education, and medical health.

female participants (Table 2).

3.3. Correlation between variables

Among male participants, moral disengagement was positively correlated with internet use for gaming ($r = 0.26, p < .001$), negative affectivity ($r = 0.41, p < .001$), and social inhibition ($r = 0.27, p < .001$) (Table 3). In female participants, moral disengagement was negatively correlated with internet use for shopping ($r = -0.15, p = .037$), and positively correlated with negative affectivity ($r = 0.26, p < .001$) and social inhibition ($r = 0.29, p < .001$) (Table 3).

3.4. Factors affecting moral disengagement

Hierarchical regression analyses were conducted separately by sex using variables identified as significant in the univariate and correlation

analyses. Model 1 included only covariates, Model 2 added the main effects of negative affectivity and social inhibition, and Model 3 included the interaction term between negative affectivity and social inhibition (Table 4).

Among male students, negative affectivity was a significant predictor of moral disengagement ($B = 1.06, p < .001$), whereas social inhibition was not significant ($B = 0.06, p = .815$). Degree of internet use for gaming was also positively associated with moral disengagement ($B = 3.33, p = .001$). The interaction between negative affectivity and social inhibition was not significant ($B = 0.00, p = .942$). The final model explained 21.6% of the variance in moral disengagement.

Among female students, negative affectivity was significantly associated with moral disengagement ($B = 0.55, p = .012$), whereas the main effect of social inhibition was not significant ($B = 0.18, p = .420$). However, the interaction between negative affectivity and social inhibition was significant ($B = -0.05, p = .034$), indicating that the

Table 2Moral disengagement by participants' characteristics ($N = 400$).

Variables	Categories	Moral disengagement					
		Male students (n = 200)			Female students (n = 200)		
		M(SD)	t/F	p	M(SD)	t/F	p
Year of study	1st	66.88(17.65)	0.58	0.626	74.00(6.29)	0.32	0.810
	2nd	73.46(18.99)			75.00(14.59)		
	3rd	74.47(15.39)			72.47(13.83)		
	4th	75.04(17.17)			73.47(13.66)		
Major	Humanities and social sciences	72.03(16.07)	1.20	0.303	72.45(12.95)	0.75	0.474
	STEM	74.39(8.30)			75.12(12.76)		
	Others	77.66(14.90)			72.88(15.47)		
Habitation	Living alone	75.99(18.92)	1.12	0.264	73.09(13.41)	0.28	0.784
	Living with someone	73.14(16.03)			73.66(13.83)		
Socioeconomic status	Low	76.46(18.52)	2.23	0.110	75.84(12.58)	0.81	0.447
	Middle	74.79(15.04)			73.31(13.68)		
	High	69.96(17.82)			72.31(14.28)		
Health status	Bad	78.67(17.12)	2.02	0.135	76.72(14.62)	1.35	0.263
	Moderate	76.00(17.59)			73.92(13.06)		
	Good	72.00(16.58)			72.10(13.79)		

Note. M = mean; SD = standard deviation; STEM = science, technology, engineering, and mathematics; Others = departments of art, physical education, and medical health.

Table 3
Correlations among study variables by sex ($N = 400$).

Male students (n = 200)										
Variables		Age	Degree of internet use for					Type D personality		Moral disengagement
			Gaming	Communicating	Learning	Shopping	Streaming	Negative affectivity	Social inhibition	
		<i>r(p)</i>	<i>r(p)</i>	<i>r(p)</i>	<i>r(p)</i>	<i>r(p)</i>	<i>r(p)</i>	<i>r(p)</i>	<i>r(p)</i>	<i>r(p)</i>
Degree of internet use for	Age	1								
	Gaming	−0.12 (0.093)	1							
	Communicating	0.04 (0.596)	0.05 (0.470)	1						
	Learning	0.14 (0.047)	−0.08 (0.237)	0.08(0.283)	1					
	Shopping	0.12 (0.079)	−0.01 (0.909)	0.38(<0.001)	0.03 (0.716)	1				
	Streaming (e.g., Netflix)	0.01 (0.884)	0.10 (0.183)	0.21(0.003)	0.08 (0.256)	0.18 (0.009)	1			
Type D personality	Negative affectivity	0.06 (0.414)	0.09 (0.199)	0.11(0.130)	0.10 (0.159)	0.13 (0.064)	0.02 (0.749)	1		
	Social inhibition	−0.01 (0.958)	−0.01 (0.873)	−0.14(0.051)	0.09 (0.192)	−0.00 (0.961)	−0.11 (0.111)	0.68 (<0.001)	1	
Moral disengagement		0.02 (0.735)	0.26 (<0.001)	0.02(0.779)	−0.05 (0.453)	0.02 (0.788)	−0.07 (0.296)	0.41 (<0.001)	0.27 (<0.001)	1
Female students (n = 200)										
Variables		Age	Degree of internet use for					Type D personality		Moral disengagement
			Gaming	Communicating	Learning	Shopping	Streaming	Negative affectivity	Social inhibition	
		<i>r(p)</i>	<i>r(p)</i>	<i>r(p)</i>	<i>r(p)</i>	<i>r(p)</i>	<i>r(p)</i>	<i>r(p)</i>	<i>r(p)</i>	<i>r(p)</i>
Degree of internet use for	Age	1								
	Gaming	0.08 (0.266)	1							
	Communicating	0.00 (0.971)	0.10 (0.151)	1						
	Learning	−0.01 (0.890)	−0.09 (0.206)	0.08(0.242)	1					
	Shopping	0.19 (0.008)	−0.03 (0.699)	0.37(<0.001)	0.06 (0.380)	1				
	Streaming (e.g., Netflix)	−0.12 (0.094)	0.05 (0.481)	0.26(<0.001)	0.30 (0.004)	0.18 (0.011)	1			
Type D personality	Negative affectivity	0.09 (0.226)	−0.00 (0.964)	−0.13(0.075)	−0.28 (<0.001)	−0.17 (0.015)	−0.06 (0.268)	1		
	Social inhibition	0.11 (0.128)	−0.05 (0.526)	0.06(0.426)	−0.15 (0.031)	0.01 (0.949)	−0.01 (0.862)	0.67 (<0.001)	1	
Moral disengagement		−0.08 (0.240)	−0.05 (0.505)	−0.05(0.522)	−0.10 (0.165)	−0.15 (0.037)	0.02 (0.821)	0.26 (<0.001)	0.29 (<0.001)	1

association between negative affectivity and moral disengagement varied according to levels of social inhibition. Specifically, this negative interaction coefficient suggests that the positive association between negative affectivity and moral disengagement may weaken as levels of social inhibition increase. The final model explained 11.1% of the variance in moral disengagement.

In summary, H1 was supported, as negative affectivity was positively associated with moral disengagement in both sexes. H2 was not supported, as the main effect of social inhibition was not significant in either sex. H3 was partially supported, as gaming was the only internet use variable significantly associated with moral disengagement. H4a was partially supported, as the interaction between negative affectivity and social inhibition was significant only among female students. H4b was partially supported, as gaming was significantly associated with moral disengagement only among male students.

4. Discussion

From a dimensional perspective, this study highlights distinct patterns of association between the two dimensions of Type D

personality—negative affectivity and social inhibition—and moral disengagement among university students. Negative affectivity showed a consistent association with moral disengagement across sexes, whereas social inhibition appeared to be relevant mainly in a conditional manner, particularly among female students. In addition, game-related internet use was positively associated with moral disengagement only among male students.

In this study, moral disengagement scores were similar between male and female students. This suggests that the sex differences in moral disengagement reported in prior studies were not clearly observed in the present sample (Gómez Tabares, 2024; Jeong et al., 2024). Regarding the Type D personality dimensions, the mean scores for negative affectivity and social inhibition in both sexes were slightly above Denollet's (2005) cutoff score of 10 for each dimension. Although both male and female students in this study showed modestly elevated levels of the two Type D personality dimensions, prior clinical research has suggested sex-related differences in these dimensions (Timmermans et al., 2019).

The absence of clear sex differences in this study may be related to increased anxiety and psychological distress among university students during the COVID-19 pandemic (Liyanage et al., 2021). Given

Table 4
Factors influencing moral disengagement by sex ($N = 400$).

Male students (n = 200)		Model 1				Model 2				Model 3				
Variables		B	SE	p	[95% CI]	B	SE	p	[95% CI]	B	SE	p	VIF	[95% CI]
Degree of internet use for gaming		3.84	1.02	<0.001	[1.83, 5.85]	3.34	0.95	<0.001	[1.47, 5.21]	3.33	0.96	0.001	1.04	[1.44, 5.22]
Type D personality	Negative affectivity					1.07	0.25	<0.001	[0.58, 1.55]	1.06	0.25	<0.001	1.88	[0.57, 1.55]
	Social inhibition					0.06	0.26	0.815	[−0.45, 0.57]	0.06	0.26	0.815	1.85	[−0.45, 0.57]
Negative affectivity × Social inhibition										0.00	0.03	0.942	1.03	[−0.05, 0.06]
Adjusted R ²		0.06				0.20				0.22				
ΔR ²						0.14				0.02				
F(p)		14.21(0.001)				17.96(<0.001)				13.40(<0.001)				
Koenker test ($\chi^2 = 7.51, p = .057$), Kolmogorov-Smirnov test (Z = 0.05, p = .200), Durbin-Watson index = 1.97 (du = 1.81, 4-du = 2.19)														

Female students (n = 200)		Model 1				Model 2				Model 3				
Variables		B	SE	p	[95% CI]	B	SE	p	[95% CI]	B	SE	p	VIF	[95% CI]
Degree of internet use for shopping		−2.02	0.96	0.037	[−3.91, −0.12]	−1.86	0.95	0.052	[−3.73, 0.02]	−1.68	0.94	0.077	1.07	[−3.54, 0.18]
Type D personality	Negative affectivity					0.57	0.22	0.010	[0.14, 0.99]	0.55	0.21	0.012	1.85	[0.12, 0.97]
	Social inhibition					0.18	0.22	0.426	[−0.26, 0.61]	0.18	0.22	0.420	1.91	[−0.25, 0.60]
Negative affectivity × Social inhibition										−0.05	0.02	0.034	1.01	[−0.10, −0.01]
Adjusted R ²		0.02				0.09				0.11				
ΔR ²						0.07				0.02				
F(p)		4.40(0.037)				7.92(<0.001)				7.19(<0.001)				
Koenker test ($\chi^2 = 5.43, p = .246$), Kolmogorov-Smirnov test (Z = 0.06, p = .058), Durbin-Watson index = 1.94 (du = 1.81, 4-du = 2.19)														

Note. B = unstandardized coefficient; SE = standard error; CI = confidence interval. Model 1 included the covariate only. Model 2 included the main effects of social inhibition and negative affectivity. Model 3 additionally included the interaction term. Interaction effects were estimated using PROCESS Macro Model 1 with mean-centered variables.

participants' academic year levels, many of them experienced the pandemic during the transition from late adolescence to early adulthood. During this period, significant changes in online activities and internet use patterns were also reported among Korean students (Kim et al., 2025). Thus, the less pronounced sex differences in moral disengagement and Type D personality dimensions observed in this study may be understood in light of increased psychological stress and greater exposure to online environments during the pandemic. This interpretation is in line with prior work emphasizing the relevance of both individual and contextual factors in moral disengagement (Yalçın & Aktaş, 2024). Future qualitative or mixed-methods studies would be useful for exploring students' experiences of psychological distress and changes in online activities to better understand how sex-related patterns in moral disengagement and Type D personality dimensions emerge across different contexts.

Importantly, negative affectivity was consistently associated with moral disengagement in both male and female students. This result aligns with prior studies involving adults (Fida et al., 2015) and university students (Zamani Amir et al., 2022) linking negative affect to moral disengagement. Together, these findings suggest that moral disengagement among South Korean university students may be more closely related to chronic emotional distress than to the interpersonal trait of social inhibition. In addition, prior evidence linking pandemic-related disruption and social isolation to psychological distress among young people (Loades et al., 2020) may help contextualize this relationship.

Elevated negative affectivity may heighten hostile attribution biases involving the distorted interpretation of others' intentions (Crick & Dodge, 1994; Martinelli et al., 2018) and deplete the self-regulatory resources needed to regulate morally relevant impulses (Baumeister, 2014). Lower empathy has also been associated with moral disengagement (Luo & Bussey, 2023). These cognitive and emotional

vulnerabilities may increase reliance on moral disengagement as a self-justifying mode of reasoning (Bandura, 1999), which, in turn, has been linked to unethical behavior (Detert et al., 2008). Given the strong association between negative affectivity and moral disengagement in this study, emotion-focused approaches may be particularly relevant to South Korean university students.

In this study, contrary to H2, social inhibition did not show a significant main effect on moral disengagement in either sex. However, among female students, a significant interaction emerged, indicating that the association between negative affectivity and moral disengagement varied according to levels of social inhibition. One possible interpretation is that female students with high social inhibition may be more cautious in interpersonal situations and more aware of others' evaluations. Prior work suggests that socially inhibited individuals may use avoidant coping strategies, such as avoiding uncomfortable social situations (Duijndam et al., 2024). Future research should further examine these possible interpersonal processes and their relevance to moral disengagement. Furthermore, in East Asian collectivistic cultures, expressive suppression may be more culturally accepted and may serve relational functions, such as maintaining relational harmony (Butler et al., 2007; Su et al., 2013). Therefore, within South Korea's collectivistic context, social inhibition may operate conditionally, with its association with moral disengagement varying according to sex, cultural norms, and interpersonal contexts.

In addition, this study found that internet gaming was significantly associated with moral disengagement among male students, whereas no such association was observed among female students. Given that male students reported higher levels of gaming engagement than female students, this pattern may reflect differential exposure to competitive, high-arousal online gaming contexts (Nocera et al., 2022; Wang et al., 2024), in addition to potential differences in game content. A recent systematic review reported that online disinhibition and platform

characteristics are associated with adolescent cyberbullying, with moral disengagement playing a potential mediating role (Wang et al., 2024). In particular, online structural features such as asynchrony were found to be directly and indirectly associated with cyberbullying through moral disengagement (Wang et al., 2024).

In such online contexts, reduced social cues and rapid, emotionally arousing interactions may hinder cognitive empathy, and such reductions in empathy have been linked to online moral disengagement (Corkum & Shead, 2025). Within such empathy-attenuated environments, users may be more likely to suspend moral self-sanctions and rely on mechanisms such as advantageous comparison and dehumanization when responding to intense competitive pressures (Bandura, 1999).

By contrast, the absence of a significant association between gaming-related exposure and moral disengagement among female students may reflect differences in their online engagement and interaction patterns compared with those of male students. Prior research suggests that females tend to be more sensitive to online risks (Piccardi et al., 2023). Female students may have been less exposed to, or avoided, gaming environments involving aggressive or uncomfortable online interactions. More broadly, recent research suggests that maladaptive digital engagement among Korean adolescents in the post-pandemic period involves diverse media activities beyond gaming (Kim et al., 2025). Therefore, future research should move beyond broad gaming versus non-gaming distinctions and differentiate online activities according to contextual features such as competitiveness, interactivity, anonymity, and asynchrony.

Overall, this study contributes to a more nuanced understanding of moral disengagement among university students by examining negative affectivity and social inhibition as distinct affective and interpersonal dimensions, respectively, while also considering online activity contexts. Negative affectivity showed the most consistent association with moral disengagement, whereas social inhibition and internet gaming showed sex-specific patterns.

5. Limitations

This study has several limitations. First, because this study was limited to 400 South Korean university students, the findings may not be generalizable to other populations or cultural contexts. Future research should include more diverse samples in terms of age and cultural background. Second, this study used self-report questionnaires to assess Type D personality, moral disengagement, and internet use, and data were collected using a cross-sectional design. Therefore, response bias may have been introduced, and temporal changes in the relationships among variables could not be determined. Future studies should incorporate objective measures to enhance reliability and adopt longitudinal designs to examine the developmental changes in moral disengagement and its correlates. Finally, although online surveys offer practical advantages (e.g., accessibility and relative anonymity), variations in participants' survey environments may have affected attention and response quality.

6. Conclusions

This study highlights the need to understand negative affectivity and social inhibition as distinct dimensions that may show different, context-dependent patterns of association with moral disengagement among university students. While moral disengagement was more consistently linked to affective vulnerability, the role of social inhibition appeared to vary by sex and situational setting. Specifically, among female students, the association between negative affectivity and moral disengagement depended on levels of social inhibition, becoming weaker at higher levels. The findings also indicate that online activity contexts, such as gaming, should be considered when examining moral disengagement among male students. Therefore, prevention and intervention strategies targeting moral disengagement among university students should

account for negative affectivity, social inhibition, online activities such as gaming, and sex differences.

CRedit authorship contribution statement

Myoung Sun Jang: Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Sophia J. Chung:** Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Haeyoung Lee:** Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Sun Joo Jang:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

Ethics approval statement

The study was conducted after obtaining approval from the Institutional Review Board of Chung-Ang University, where the researchers are affiliated (No. 1041078-202203-HR-139, Approval date: July 6, 2022).

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Declaration of competing interest

The authors declare no conflicts of interest regarding the publication of this article.

Acknowledgements

The authors have no acknowledgments to declare.

Data availability

Data will be made available on request.

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