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Changes in the Reciprocal Relationship Between Parenting and Self-Awareness During Adolescence: A Longitudinal Analysis of National Big Data

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ABSTRACT

Purpose: This study aimed to identify the reciprocal relationship between parenting and self-awareness during adolescence.
Design and methods: This study analyzed longitudinal data from the Korea Children and Youth Panel Survey at three time points over a four-year period. Individuals ($n = 2092$; mean age 12.95 years) in their first year of middle school participated at the beginning of the survey. Repeated measurements were performed for the same participants in their third year of middle school and first year of high school between 2010 and 2016. Participants completed 18 self-awareness (self-esteem and self-identity) items and 21 parenting (positive and negative) items at three different time points. The autoregressive cross-lagged model was used to examine the causal relationship between parenting and adolescents' self-awareness.
Results: Positive parenting and adolescents' self-awareness influenced each other. In terms of the magnitude of the effects of the two variables, the impact of adolescents' self-awareness on positive parenting was greater than that of positive parenting on adolescents' self-awareness. Adolescents' self-awareness at the previous time points negatively predicted negative parenting at the later time points. However, negative parenting at the previous time points was not a significant predictor of adolescents' self-awareness at the later time points.
Conclusions: In this study, the impact of adolescents' self-awareness on parenting was greater than was the case vice versa. This result could be regarded as reflecting adolescents' developmental characteristics.
Practice implications: Intervention programs directly focusing on improving adolescents' self-awareness may be more effective than parenting interventions to improve self-awareness in adolescents.

Introduction

Adolescence is a time of dramatic physical, cognitive, and social changes (Neinstein et al., 2016). In particular, the sense of "self" changes profoundly during this period, as the expansion of the self-concept, including self-awareness, is a major developmental task (Neinstein et al., 2016).

Enhancing self-awareness by involving the concepts of self-esteem and self-identity in adolescents is vital, since self-awareness affects healthy growth and development (Erikson, 1968) and major developmental tasks and behaviors in adulthood, such as emotional stability and positive social functioning (Alessandri et al., 2014; Crocetti, Rubini, Luyckx, & Meeus, 2008).

Various factors including children's relationships with family, peers, and teachers influence their self-awareness (Chung & Yuh, 2009; Rageliene, 2016; Sok & Shin, 2010). Parenting, the most crucial environmental factor, plays a pivotal role in children's psychosocial and personality development, including self-awareness (Kim, 2014). Menon et al. (2007) illustrated that children who perceived their parents' parenting as more affectionate, complete, and rational had a high self-efficacy. Choi (2011) noted that warmer and more accepting maternal parenting perceived was significantly associated with high levels of self-esteem in children. In addition, family support and warm and accepting parenting styles were strong predictors of increased self-awareness in children (Chung & Yuh, 2009).

In contrast, it has been reported that overprotective parenting hinders the development of children's self-awareness, and inconsistent parenting causes emotional problems in children (You & Hwang, 2017). Negative parenting styles, such as corporal punishment, could lead to severe behavioral problems and have a detrimental effect on

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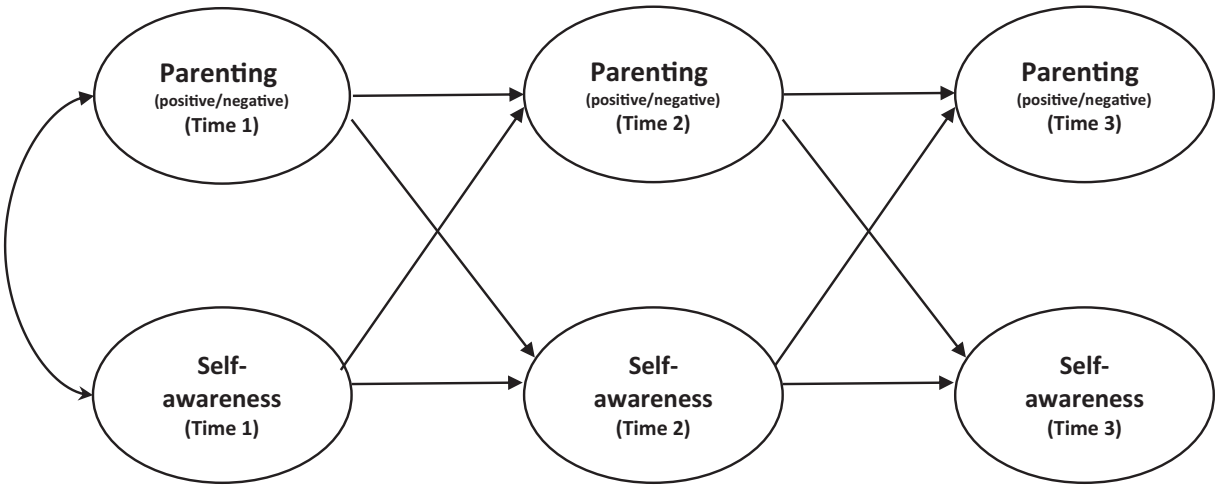

Fig. 1. The conceptual model.

children's overall development, including self-awareness (Berg-Nielsen, Vikan, & Dahl, 2002; Huh, 2004; Kochanska, 2002).

Parenting influences, and is influenced by, how children behave. The relationship between parenting and children's behavior changes over time (Serbin, Kingdon, Ruttle, & Stack, 2015). Children's cooperative attitudes may yield more positive parenting, while children's aggression could lead to more negative parenting. As children grow and become more independent, their temperament and behaviors could affect parenting to a greater extent (Pardini, 2008; Scar & McCartney, 1983).

Most prior studies, however, have focused on the one-way effect of parenting on children's behavior, without considering changes in the reciprocal relationship between parenting and children's behaviors over time (Pardini, 2008; Serbin et al., 2015). Indeed, to our knowledge, there has been no published study analyzing the reciprocal relationship between parenting and children's self-awareness, using panel data from adolescents aged 13–17 years, in the transition period.

The present study aimed to identify the comprehensive relationship between adolescents' self-awareness and parenting over time, in consideration of different parenting types (positive vs. negative), using national panel data (repeated measures data) from three time points: the first and third years of middle school and the first year of high school. Particularly, the current study examined the following research questions within a theoretical framework derived from the findings of prior research (Fig. 1): (1) Do parenting styles (positive and negative parenting) remain stable over time?; (2) Does adolescents' self-awareness (self-esteem and self-identity) remain stable over time?; (3) How do parenting styles influence adolescents' self-awareness over time?; and (4) How does adolescents' self-awareness influence parenting styles over time?

Methods

Design

The current study is a secondary analysis of the longitudinal data from the Korea Children and Youth Panel Survey (KCYPS) that investigated parenting and children's behavioral issues.

Study population

The KCYPS was based on a stratified multistage cluster sample of individuals in their fourth year of elementary school at the beginning of the survey. KCYPS data were collected every year between 2010 and 2016. In the panel survey, 2378 adolescents participated. In the current study, both parenting and self-awareness were measured using data from the fourth (the first year of middle school, Time 1), sixth (the third year of middle school, Time 2), and seventh (the first year of high school, Time 3) years of the survey. We analyzed data from 2092 respondents at Time 1, 2061 respondents at Time 2, and 1979 respondents at Time 3.

Measures

Parenting

Parenting refers to parents or caregivers' behaviors while raising a child as perceived by the child (Youn, 2014). In the KCYPS, the questionnaires regarding perceived parenting included six indexes: supervision, affection, inconsistency, excessive expectation, over-involvement, and reasonable explanations. In this study, 21 items were adapted from

Table 1
Descriptive statistics for the variables.

	n	Positive parenting				Negative parenting				Self-awareness		
		Supervision or direction	Affection	Rational explanation	Total	Inconsistency	Excessive expectation	Over involvement	Total	Self-esteem	Self-identify	Total
		M(SD)	M(SD)	M(SD)	M(SD)	M(SD)	M(SD)	M(SD)	M(SD)	M(SD)	M(SD)	M(SD)
Time 1	2092	3.30 (0.56)	3.17 (0.58)	2.99 (0.61)	3.15 (0.49)	2.34 (0.69)	2.60 (0.63)	2.32 (0.68)	2.42 (0.58)	3.14 (0.46)	2.65 (0.40)	2.90 (0.37)
Time 2	2061	3.22 (0.58)	3.12 (0.56)	2.92 (0.59)	3.09 (0.48)	2.14 (0.67)	2.33 (0.63)	2.12 (0.62)	2.20 (0.56)	3.06 (0.45)	2.72 (0.44)	2.89 (0.40)
Time 3	1979	3.23 (0.56)	3.13 (0.56)	2.90 (0.58)	3.08 (0.47)	2.04 (0.65)	2.33 (0.61)	2.14 (0.61)	2.17 (0.54)	3.04 (0.45)	2.70 (0.41)	2.87 (0.38)

Table 2
Correlations between parenting and self-awareness.

			Parenting						Self-awareness		
			Positive			Negative			Time 1	Time 2	Time 3
			Time 1	Time 2	Time 3	Time 1	Time 2	Time 3			
Parenting	Positive	Time 1	1.00								
		Time 2	0.46**	1.00							
		Time 3	0.40**	0.54**	1.00						
	Negative	Time 1	–	–	–	1.00					
		Time 2	–	–	–	0.40**	1.00				
		Time 3	–	–	–	0.34**	0.49**	1.00			
Self-awareness		Time 1	0.44**	0.27**	0.24**	−0.23**	−0.18**	−0.13**	1.00		
		Time 2	0.33**	0.44**	0.33**	−0.13**	−0.31**	−0.20**	0.51**	1.00	
		Time 3	0.28**	0.35**	0.44**	−0.07**	−0.19**	−0.32**	0.43**	0.58**	1.00

** $p < 0.01$.

the 43 items of Huh's (2004) parenting attitude measure by combining the items for mother and father separately into items for parents in general and removing duplicates.

Positive parenting. The questionnaire regarding positive parenting contained 10 items scored on a four-point Likert scale (1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree): supervision (three items), affection (four items), and reasonable explanation (three items). For the purpose of this study, positive items were reverse scored, with a high score indicating high levels of positive parenting. Cronbach's alpha coefficient was 0.88.

Negative parenting. The questionnaire regarding negative parenting comprised 11 items scored on a four-point Likert scale (1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree): inconsistency (three items), excessive expectation (four items), and over-involvement (four items). Negative items were reverse scored in this study, with high scores representing high levels of negative parenting. Cronbach's alpha coefficient was 0.87–0.88.

Self-awareness

Self-awareness refers to the ability to recognize oneself as an individual that is separate from other individuals, and this develops in interpersonal interactions (Cooley, 1902). Self-awareness is a core element in the development of self-concept (Leary & Tangney, 2012). Self-awareness could be reflected in the evaluation of self-identity and self-esteem (Morf & Mischel, 2012). According to Erikson (1968)'s theory, self-identity is a sense of self that is the ego's experience of continuity and sameness in relation to itself. Self-esteem refers to an overall evaluation of oneself as favorable, desirable, and worthy (Rosenberg, 1965).

The KCYPS's self-awareness measure consists of two scales: self-esteem and self-identity. The eight items from Song's (2008) self-identity measure were used to examine children's self-identity. Children's self-esteem was examined using the 10 items from the Korean version of Rosenberg's (1965) self-esteem measure (Behavior Science Research Center at Korean University, 2000). These are scored on four-point Likert scales (1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree). For the purpose of this study, positive items were reverse scored, with a high score indicating high levels of self-awareness. Cronbach's alpha coefficient was 0.82–0.86.

Ethical consideration

This study was reviewed by the Institutional Review Board at Korea University and was determined to be an exempt study (IRB No. KU-IRB-18-EX-15-A-1).

Data analysis

Analyses were performed using SPSS-WIN version 18.0 and AMOS version 18.0 with a significance level of 0.05. Descriptive analyses were performed using SPSS for the description of the participants' characteristics and the examined variables. Autoregressive cross-lagged (ARCL) modeling was employed using AMOS to assess the causality of parenting and adolescents' self-awareness. ARCL modeling is appropriate for longitudinal analyses of panel data, because it allows the assessment of the direction of causality between two variables and provides an estimate of the magnitude of the causal effects. Furthermore, it can explain the relationship in which the value at a point in time is predicted by the value at the previous point in time (Wu, Selig, & Little, 2013).

The concept of the ARCL modeling is as follows. The value at Time 2 is predicted by the value at Time 1. The autoregressive pathways estimate the association between parenting (or self-awareness) at three different time points (Time 1, Time 2, and Time 3). The associations between Time 1 and Time 2 and between Time 2 and Time 3 can be analyzed. Moreover, the cross-lagged pathways allow us to measure the relationship between parenting and self-awareness.

Missing data were modeled with full information maximum likelihood (FIML) estimation to examine model fit and the parameter estimate value. For the evaluation of model fit, the χ^2 goodness-of-fit test,

Table 3
Model fits and model comparison.

Model	Positive parenting						Negative parenting					
	χ^2	df	TLI	CFI	RMSEA	$\Delta\chi^2$	χ^2	df	TLI	CFI	RMSEA	$\Delta\chi^2$
Model 1	248.124	64	0.974	0.986	0.036	–	417.913	64	0.953	0.975	0.050	–
Model 2	253.007	68	0.975	0.986	0.035	4.883	436.421	68	0.954	0.974	0.050	18.508
Model 3	278.776	70	0.973	0.984	0.037	25.769	443.739	70	0.954	0.973	0.049	7.318
Model 4	281.645	71	0.973	0.984	0.037	2.869	448.42	71	0.954	0.973	0.049	4.681
Model 5	284.039	72	0.973	0.984	0.037	2.394	451.585	72	0.955	0.973	0.049	3.165
Model 6	284.533	73	0.974	0.984	0.036	0.494	453.276	73	0.955	0.973	0.049	1.691
Model 7	292.249	74	0.973	0.983	0.037	7.716	453.493	74	0.956	0.973	0.048	0.217
Model 8	302.246	75	0.972	0.983	0.037	9.997	456.676	75	0.956	0.973	0.048	3.183

CFI, comparative fit index; TLI, Tucker-Lewis index; RMSEA, root mean square error of approximation; T1, Time 1; T2, Time 2; T3, Time 3.

Tucker-Lewis index (TLI), Comparative Fit Index (CFI), and root mean square error of approximation (RMSEA) were used.

Results

Sample characteristics

At Time 1, 2092 adolescents participated, while 2061 and 1979 participated at Times 2 and 3, respectively. At Time 1, the sample consisted of 1100 boys and 992 girls, with a mean age of 12.95 years (SD = 0.23). The fathers' mean age was 44.84 years (SD = 4.26), and the mothers' mean age was 42.14 years (SD = 3.86). Most of the parents had completed formal education at high school level or higher; 59.12% (n = 1164) of the fathers and 51.2% (n = 1025) of the mothers had graduated from college; 81.2% of the fathers and 54.6% of the mothers were employed. 89.1% of the adolescents (n = 1863) lived in a two-parent family, while 8.2% (n = 171) grew up in a single-parent home. About 0.8% (n = 17) of the adolescents reported having no parents.

Preliminary analyses

The means and standard deviations for the study variables at each time point are displayed in Table 1. Based on the results of skewness (−0.25–0.26) and kurtosis tests (0.03–0.62), the current data were found to be normally distributed (Hong, Malik, & Lee, 2003).

Main variables were shown to be statistically associated with each other at each time point, as well as between the different time points (Table 2). Regardless of the time point, adolescents' self-awareness was positively correlated with positive parenting, and it was negatively correlated with negative parenting. The strongest relationship was found between self-awareness at Times 2 and 3 (r = 0.58, p < .01). The relationships between positive parenting at Times 2 and 3 (r = 0.54, p < .01), and between negative parenting at Times 2 and 3 (r = 0.49, p < .01) were the next strongest.

Autoregressive cross-lagged analyses

Measurement invariance, homogeneity of paths, and error covariance were tested sequentially with eight competitive models to assess the causality of parenting and self-awareness over time (Table 3). First, a baseline model was established with no constraint (Model 1). Next, the invariance of factor loadings involving the latent variable of parenting (positive and negative) was assessed by imposing equality constraints across time points (Model 2). Additionally, the invariance of factor loadings involving the latent variable of self-awareness was examined by imposing equality constraints across time points (Model 3). Moreover, the autoregressive coefficients of parenting (Model 4) and self-awareness (Model 5) were constrained to be equal. Next, the cross-regression coefficient of parenting toward self-awareness was constrained to be equal (Model 6), while the cross-regression coefficient of self-awareness toward parenting was constrained to be equal in Model 7. Finally, the error coefficients of latent variables, parenting, and self-awareness were constrained to be equal (Model 8).

Model fit was assessed sequentially using four fit indices. Since the χ^2 difference test ($\Delta\chi^2$) may yield problems related to sample size sensitivity, we compared the results of the CFI, TLI, and RMSEA that are not sensitive to the sample size (Hong, 2000; Little, Preacher, Selig, & Card, 2007; Selig & Little, 2012), with values ≥ 0.90 for the CFI and TLI, and ≤0.08 for the RMSEA indicating a good fit. An RMSEA ≤ 0.05 suggested a very good fit (Kline, 2010). In the present analyses, the homogeneity was established, showing CFI and TLI ≥ 0.90 and RMSEA ≤ 0.05 (Table 3). Considering model parsimony and degrees of freedom, Model 8 was selected as the final model in which most homogeneity constraints were added.

The results of Model 8 are presented in Tables 4.1 and 4.2 and Figs. 2 and 3. The results revealed that parenting at previous time points positively predicted parenting at later time points (positive parenting: β = 0.504, p < .001, β = 0.524, p < .001; negative parenting: β = 0.467, p < .001, β = 0.484, p < .001). Additionally, adolescents' self-awareness at previous time points positively predicted their self-awareness at later time points (β = 0.590–0.634, p < .001, β = 0.632–0.693, p < .001). Both parenting and self-awareness measures were stable over time.

Table 4.1
Regression weights for cross-lagged SEM model of positive parenting and self-awareness.

Effect	*B*	*SE*	*β*
Positive parenting(T1) → Positive parenting(T2)	0.503	0.021	0.504***
Self-awareness(T1) → Self-awareness(T2)	0.627	0.026	0.590***
Positive parenting(T1) → Self-awareness(T2)	0.039	0.017	0.050**
Self-awareness(T1) → Positive parenting(T2)	0.105	0.027	0.077***
Positive parenting(T2) → Positive parenting(T3)	0.503	0.021	0.524***
Self-awareness(T2) → Self-awareness(T3)	0.627	0.026	0.632***
Positive parenting(T2) → Self-awareness(T3)	0.039	0.017	0.051**
Self-awareness(T2) → Positive parenting(T3)	0.105	0.027	0.086***

T1, Time 1; T2, Time 2; T3, Time 3.
** p < .05.
*** p < .001.

Cross-lagged effects were observed, in that positive parenting at previous time points positively predicted adolescents' self-awareness at later time points (β = 0.050, p < .05, β = 0.051, p < .05). Furthermore, adolescents' self-awareness at previous time points positively predicted positive parenting at later time points (β = 0.077, p < .001, β = 0.086, p < .001). In terms of the magnitude of the causal effects of the two variables, the effect from adolescents' self-awareness to positive parenting was greater (β = 0.077–0.086) than the effect from positive parenting to adolescents' self-awareness (β = 0.050–0.051). The negative parenting at previous time points did not predict adolescents' self-awareness at later time points. However, adolescents' self-awareness at previous time points negatively predicted negative parenting at later time points (β = −0.061, p < .001, β = −0.070, p < .001).

Taken together, these results indicate that high levels of positive parenting at previous time points predicted high levels of adolescents' self-awareness at later time points, while negative parenting at previous time points did not predict adolescents' self-awareness at later time points. Adolescents' self-awareness at previous time points predicted both positive and negative parenting at later time points; high levels of adolescents' self-awareness at previous time points predicted high levels of positive and low levels of negative parenting at later time points.

Discussion

The present study aimed to examine the bidirectional relationship between adolescents' self-awareness and parenting, exploring the reciprocal influence and direction of the causality between the two variables in the course of adolescents' development. We used longitudinal data collected at three time points, from the first year of middle school

Table 4.2
Regression weights for cross-lagged SEM model of negative parenting and self-awareness.

Effect	*B*	*SE*	*β*
Negative parenting(T1) → Negative parenting(T2)	0.459	0.017	0.467***
Self-awareness(T1) → Self-awareness(T2)	0.685	0.022	0.634***
Negative parenting(T1) → Self-awareness(T2)	0.023	0.012	0.035
Self-awareness(T1) → Negative parenting(T2)	−0.100	0.029	−0.061***
Negative parenting(T2) → Negative parenting(T3)	0.459	0.017	0.484***
Self-awareness(T2) → Self-awareness(T3)	0.685	0.022	0.693***
Negative parenting(T2) → Self-awareness(T3)	0.023	0.012	0.035
Self-awareness(T2) → Negative parenting(T3)	−0.100	0.029	−0.070***

T1, Time 1; T2, Time 2; T3, Time 3.
*** p < .001.

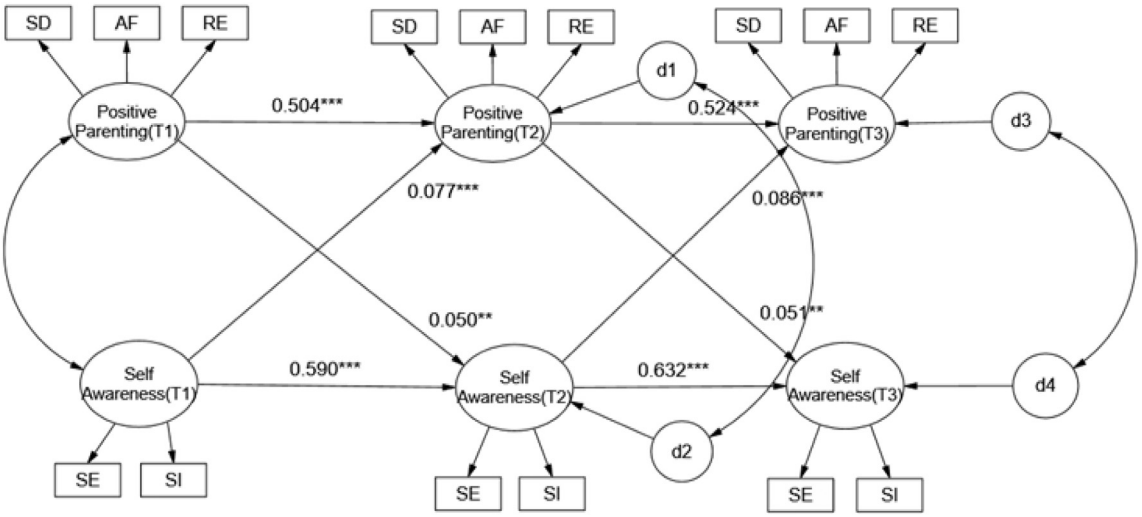

Fig. 2. Autoregressive cross-lagged model between positive parenting and self-awareness. Estimates are standardized regression weights. *** $p < .001$, ** $p < .05$. SE: Self Esteem, SI: Self Identity, SD: Supervision or Direction, AF: Affection, RE: Rational Explanation. T1: Time 1, T2: Time 2, T3: Time 3.

to the first year of high school, employing ARCL modeling. The following are the main findings of the study.

First, we demonstrated that parenting and adolescents' self-awareness tended to remain constant over time. They were both similar at all three time points. Parenting and adolescents' self-awareness at previous time points predicted those at later time points. These results are consistent with the findings of Serbin et al.'s (2015) study, which reported the stability of parenting from preschool to adolescence. Additionally, previous studies (Park & Lee, 2013; Wichstrøm & Soest, 2016) have documented the stability of adolescents' self-awareness as found in the current study. These findings suggest that parenting and adolescents' self-awareness tend to stay the same; they are not merely transient.

Second, we found that parenting and adolescents' self-awareness influenced each other. Higher levels of positive parenting were associated with improvements in adolescents' self-awareness. In turn, higher levels of adolescents' self-awareness over time led to increased positive parenting. When comparing the magnitude of the effects of the two variables, the effect from adolescents' self-awareness to positive parenting was greater than was the case vice versa. Adolescents' self-awareness predicted negative parenting, but negative parenting was not a significant predictor of adolescents' self-awareness. That is, higher levels of adolescents' self-awareness predicted reduced levels of negative parenting.

Researchers have posited that the parent-child relationship plays a critical role in the development of children's self-awareness (Choi & Yoo, 2007; Hipwell et al., 2008; Pardini, 2008; Serbin et al., 2015). Particularly, many studies have emphasized negative parenting's detrimental effects on children's emotional development, focusing principally on parent-to-child effects (Ahn & Lee, 2016; Berg-Nielsen et al., 2002; Cai, Hardy, Olsen, Nelson, & Yamawaki, 2013; You & Hwang, 2017), which is inconsistent with the present study's finding. The present study showed that adolescents' self-awareness influenced both positive and negative parenting more than was the case vice versa. This may imply that the effects and characteristics of the reciprocal relationship between children and parents can be different, depending on children's developmental stages (Pettit & Arsiwalla, 2008).

Adolescents strive to achieve more autonomy and be more independent of their parents (Choi & Yoo, 2007). They may have a greater impact on parenting at this time than at other previous periods (Lytton,

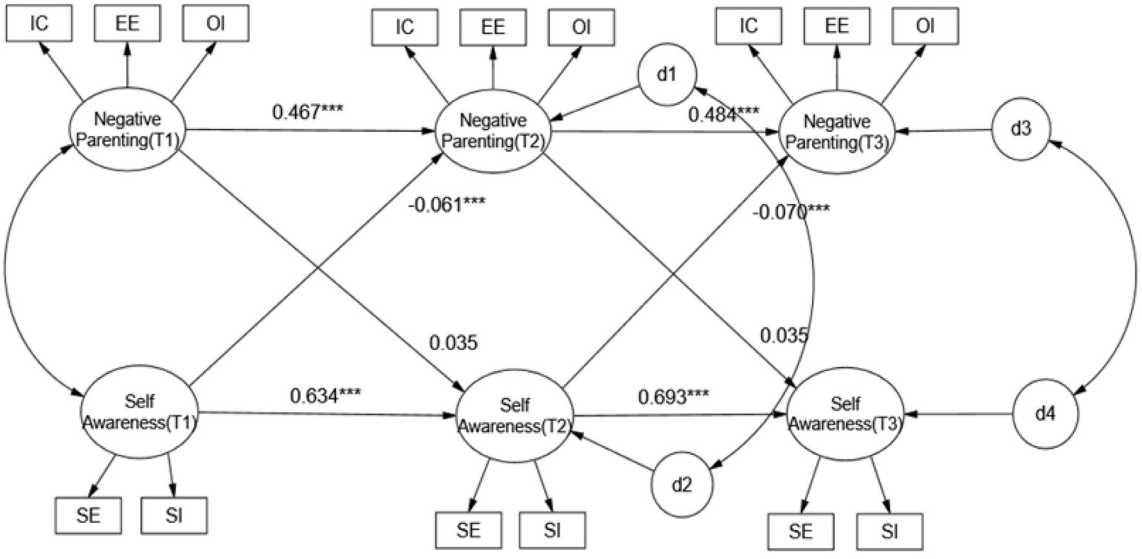

Fig. 3. Autoregressive cross-lagged model between negative parenting and self-awareness. Estimates are standardized regression weights. *** $p < .001$, ** $p < .05$. SE: Self Esteem, SI: Self Identity, IC: Inconsistency, EE: Excessive Expectation, OI: Over Involvement. T1: Time 1, T2: Time 2, T3: Time 3.

2000; Pardini, Fite, & Burke, 2008). Given that the target population of this study was individuals aged 13–16 years, it is possible that the present results reflected the traits of adolescents: an increased desire for autonomy and being independent. A study of children aged 6–16 years found that children's behavioral problems did not lead to reduced positive parenting when they were younger (Serbin et al., 2015). However, as the children grew, positive parenting was negatively affected more by children's emotional and behavioral problems, suggesting that child-to-parent effects could differ according to children's ages (Serbin et al., 2015). You and Hwang (2017) reported that adolescents in the groups with inconsistent and permissive parenting styles showed higher levels of self-awareness than did adolescents in the groups with affectionate and overprotective parenting styles. This was interpreted to mean that adolescents were influenced more by their internal emotional states than by their parents.

Particularly, the effect of adolescents' self-awareness is more obvious on negative parenting compared to positive parenting in this study. Studies have illustrated that lower levels of adolescents' self-awareness are significantly associated with their emotional and behavioral problems (Henriksen, Ranøyen, Indredavik, & Stenseng, 2017; Schwartz, Klimstra, Luyckx, Hale 3rd, & Meeus, 2012; Schwartz et al., 2017). These problems could continuously hamper positive parenting, thus yielding more negative parenting. If a child is difficult to handle, their parents may need to unceasingly change their parenting styles, which will cause the parents reach their limits of patience. They would likely lose their temper and use negative parenting strategies, such as physical punishment and psychological control (Verhoeven, Junger, Aken, Deković, & Aken, 2010).

Based on the current finding that an increase in adolescents' self-awareness leads to more positive parenting, intervention programs directly focusing on improving adolescents' self-awareness may be more effective than parenting interventions to improve self-awareness in adolescents. Strategies considering the developmental features of adolescents are warranted.

It is noteworthy that we explored the bidirectional relationship between parenting and adolescents' awareness using longitudinal data, which enabled us to examine both child-to-parent and parent-to-child effects. Most of the prior studies, however, focused on the one-way influence from parenting to children's psychological development, including self-awareness (Choi, 2011; Menon et al., 2007; Rubin et al., 2004; Vieno, Nation, Pastore, & Santinello, 2009). Moreover, this study found that the relationship between adolescents' self-awareness and parenting differed according to the type of parenting, whether positive or negative, thus, providing a more comprehensive understanding of the child-parent relationship.

In terms of a nursing theoretical implication, the present results could contribute to a theoretical framework providing an in-depth understanding of the relationship between adolescents and their parents. From the nursing practical point of view, the current findings support evidence-based practices of nurses in clinical settings, especially the nurses who deal with adolescents with chronic conditions (CC). Ahn and Lee (2016) reported that relative to adolescents without CC, the lower level of self-awareness in adolescents with CC was more likely to have a negative influence on parenting styles. Therefore, the nurses should consider the importance of self-awareness in adolescents with CC when developing an intervention to improve the relationship between adolescents with CC and their parents. Also, it will be advantageous for school nurses to add educational components that can improve adolescents' self-awareness into interventions concerning strengthening the adolescent-parent relationship.

Despite the significance of this study, there are some limitations. First, parenting was assessed by the adolescents, and their perceptions might have differed from those of the parents or third parties. Second, this study did not take into consideration the environmental factors besides parenting that might have affected adolescents' self-awareness. We suggest that future studies should consider various factors that could have an impact on adolescents' self-awareness. It will be important to replicate the results of the present study and investigate the changes in the relationships between adolescents' self-awareness and parenting, according to different developmental phases.

Conclusions

In this study, the impact of adolescents' self-awareness on parenting was greater than was the case vice versa. This result could be regarded as reflecting the developmental characteristics of adolescents. Various strategies targeting a direct increase in adolescents' self-awareness should be developed.

Conflict of interest

None of the named authors have any potential conflicts, real or perceived.

Funding

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Ethical approval

This study was reviewed by the Institutional Review Board at Korea University, and this was determined to be an exempt research study (IRB No. KU-IRB-18-EX-15-A-1).

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