

Peer Relationship Buffers the Pathway From Neglectful Parenting Through Social Withdrawal to Depression Among Adolescents From Multicultural Families in Korea

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Abstract

Adolescents from multicultural families face elevated risk for depression, yet the family- and peer-level processes linking early parenting to later internalizing problems remain insufficiently specified, particularly with designs that establish temporal order. Drawing on a developmental-cascade framework, this study tested whether social withdrawal mediates the prospective association between neglectful parenting and depression, and whether peer relationship moderates the second (withdrawal-to-depression) stage of that pathway. Three annual waves of the Multicultural Adolescents Panel Study (MAPS; $N = 1,635$; Waves 7–9, 2017–2019) were analyzed in two steps. First, an autoregressive cross-lagged model established the temporal connectivity among constructs while controlling each construct's stability; the forward path from social withdrawal (T2) to depression (T3) was significant ($\beta = .220, p < .001$), confirming the hypothesized ordering. Second, a moderated-mediation model with five covariates showed that neglectful parenting (T1) predicted social withdrawal (T2; $\beta = .145$) and depression (T3; $\beta = .157$), that withdrawal predicted depression ($\beta = .297$), and that the indirect effect was significant ($\beta = .043$, 95% bias-corrected CI [.020, .068]). Peer relationship significantly buffered the withdrawal–depression link (Peer Relationship $\times$ Social Withdrawal: $\beta = -.055, p = .032$) but not the direct neglect–depression path, and the conditional indirect effect declined as peer relationship increased (from .049 at $-1 SD$ to .037 at $+1 SD$). Findings support a buffered developmental cascade in which neglectful parenting propagates to depression through social withdrawal, with supportive peer relationships attenuating the interpersonal stage of the cascade. Strengthening peer relationships may be a useful target for preventing depression among adolescents in multicultural families.

Introduction

South Korea has become a multicultural society within a single generation. Multicultural families are formed predominantly through marriage between Korean men and foreign-born women; in 2024, marriages between a Korean husband and a foreign wife accounted for roughly seven in ten multicultural marriages (Statistics Korea, 2024). As a result, most adolescents in these families grow up with a Korean father and an immigrant mother, and they constitute a rapidly expanding share of the school-age population. Understanding the family and peer processes that shape their mental health has accordingly become a priority for both developmental science and youth policy.

These adolescents carry an elevated burden of internalizing distress. National data indicate that depressive mood, suicidal ideation, and suicide attempts are each markedly more prevalent among multicultural than monocultural adolescents in Korea (Lee & Jeong, 2021), and panel research traces how acculturative and family stressors translate into depressive symptoms over time (Lim, 2023). Because adolescent depression forecasts impaired functioning and later disorder, identifying its modifiable family and peer antecedents in this population is both theoretically and practically consequential.

Among family antecedents, neglectful parenting, a pattern low in both warmth and supervision, is a particularly robust risk factor. In the classic typology, the neglectful/uninvolved style yields the poorest adolescent adjustment (Baumrind, 1991; Maccoby & Martin, 1983), and attachment theory explains why: chronically unresponsive caregiving fosters internal working models of the self as unworthy and of others as unreliable, a depressogenic template (Bowlby, 1980). Rohner's parental acceptance–rejection theory frames neglect as a form of perceived rejection that predicts maladjustment across cultures (Rohner et al., 2005), and cross-cultural meta-analyses confirm the link between perceived neglect and psychological maladjustment (Khaleque, 2015; Khaleque & Rohner, 2002). For multicultural families, in which immigrant mothers often face acculturative and economic strain, the risk of neglect, and its impact, may be amplified.

Why should a neglectful home foreshadow depression years later? One developmentally coherent mechanism is social withdrawal, the tendency to retreat from opportunities for social interaction. Low parental warmth and insecure attachment predict trajectories of withdrawal (Rubin et al., 2009), and withdrawn adolescents elicit fewer positive interactions and more rejection, depriving them of the social reinforcement that protects mood (Coyne, 1976). Withdrawal is thus among the most reliable behavioral precursors of depression, and recent Korean panel studies show that neglectful parenting predicts withdrawal and depression and that the two are reciprocally related across waves (Kim & Cui, 2024; Lim & Kim, 2025). Social withdrawal therefore offers a theoretically grounded relay linking neglectful parenting to depression.

The transition from withdrawal to depression, however, is unlikely to be uniform. Peer relationships are the central relational resource of adolescence and a candidate buffer. The stress-buffering model holds that supportive ties attenuate the impact of risk by supplying belonging and emotional resources (Cohen & Wills, 1985), and a diathesis–stress account shows that anxious-solitary children develop the most elevated depressive trajectories only when the peer context is adverse, whereas accepted withdrawn children improve over time (Gazelle & Ladd, 2003). Peer support prospectively predicts and buffers adolescent depressive symptoms (Letkiewicz et al., 2023). Examining peer relationship as a moderator therefore clarifies when social withdrawal is most harmful.

The present study integrates these literatures into a moderated mediation model tested across three consecutive waves of the Multicultural Adolescents Panel Study (MAPS). We examine whether social withdrawal (Time 2) mediates the prospective association between neglectful parenting (Time 1) and depression (Time 3), and whether peer relationship (Time 3) buffers the withdrawal–depression link such that the indirect effect is conditional on peer relationship. The model both extends and differs from prior Korean work: unlike mediation-only panel studies (Lim & Kim, 2025) it adds a second-stage moderator, and unlike moderated-mediation studies that specify parental support as the buffer (Kwon, 2024) it specifies peer relationship, which is theoretically apt because the withdrawal–depression mechanism is itself interpersonal and peer-based (Coyne, 1976; Gazelle & Ladd, 2003). Using temporally ordered measurement in a nationally based panel of adolescents from multicultural families, the study addresses both the mechanism and the boundary condition of the neglectful parenting–depression

relationship. Analytically, it proceeds in two steps that mirror this reasoning: it first establishes the prospective, cross-lagged connectivity among the constructs in an autoregressive cross-lagged model, and then, on that temporal foundation, estimates the moderated-mediation pathways implied by the confirmed ordering.

Theoretical Background

An Overarching Framework: The Developmental Cascade Model

The present model is organized by the developmental cascade framework from developmental psychopathology, which holds that functioning in one domain spills over to affect functioning in other domains over time, so that early difficulties accumulate and transfer across systems as development unfolds (Masten & Cicchetti, 2010). Applied here, the framework specifies a directional sequence in which a family-system liability (neglectful parenting) cascades into an interpersonal-system liability (social withdrawal) and ultimately into an intrapersonal, emotional outcome (depression). Each established theory in this study supplies one link of that cascade rather than competing with the others: attachment theory and parental acceptance–rejection theory explain why a neglectful family environment initiates the cascade (Bowlby, 1980; Rohner et al., 2005); the social-withdrawal and interpersonal-depression literatures explain how the cascade propagates from family to peer functioning and then to mood (Coyne, 1976; Rubin et al., 2009); and the stress-buffering model explains when the cascade is interrupted, namely when supportive peer relationships are available to absorb the interpersonal stage (Cohen & Wills, 1985). The cascade view also justifies the study’s three-wave, temporally ordered design and its second-stage moderator: because cascades are sequential, protective resources are most informative when they act at the specific transition they are theorized to buffer; here, the conversion of withdrawal into depression. The four hypotheses below trace this cascade link by link.

Neglectful Parenting and Adolescent Depression (Initiating the Cascade)

Three convergent frameworks link neglectful parenting to depression, and read together they specify not merely that an association exists but why it should be prospective and depressogenic. The parenting-style typology identifies the uninvolved/neglectful style, low in both responsiveness and demandingness, as the configuration that most undermines adolescent competence and adjustment (Baumrind, 1991; Maccoby & Martin, 1983), because the adolescent is left without either the warmth that conveys worth or the structure that scaffolds self-regulation. Attachment theory specifies the intervening process: when caregivers are chronically unavailable, the adolescent internalizes the self as unworthy of care and others as unreliable, and Bowlby tied this working model directly to sadness and depression (Ainsworth et al., 1978; Bowlby, 1980). Crucially, because such internal working models are carried forward in time and applied to new relationships, the framework predicts that the emotional cost of early neglect should

surface not only concurrently but at a later developmental point, precisely the prospective signature this study tests. PARTheory generalizes the claim cross-culturally, treating indifference and neglect as expressions of perceived rejection that predict maladjustment regardless of culture (Rohner et al., 2005), which matters here because the sample is drawn from multicultural families in which the meaning of parental involvement might otherwise be questioned. The empirical warrant is correspondingly strong and converges from several designs: meta-analyses spanning dozens of countries link perceived acceptance–rejection and neglect to children’s adjustment (Khaleque, 2015; Khaleque & Rohner, 2002); a synthesis of more than a thousand studies ties low warmth and intrusive control to internalizing symptoms (Pinquart, 2017); and prospective and panel evidence confirms neglect as an antecedent of later depression rather than merely a correlate of it (Humphreys et al., 2020; Lim & Kim, 2025). In the Korean multicultural context, where immigrant-mother families face added acculturative and economic strain that can erode the time and attentiveness parenting requires, this risk is especially salient (Lim, 2023). Within the cascade logic, this is the initiating link: a chronic deficit in the family system establishes a depressogenic vulnerability that, once formed, is poised to spread to other domains of functioning. The first prediction therefore concerns the temporal head of the cascade. Specifically, neglectful parenting at Time 1 is expected to be positively and prospectively associated with adolescent depression at Time 3 (Hypothesis 1): adolescents who perceive more emotionally uninvolved, inattentive parenting in the first measured wave should report higher depressive symptoms two years later, with an effect that is positive in sign, modest-to-moderate in magnitude in line with the meta-analytic record, and, because the working-model account implies a genuinely carried-forward rather than transient effect, one that remains significant after the autoregressive stability of depression and the demographic covariates are controlled.

Establishing Temporal Precedence: From Cross-Lagged Connectivity to Mediation

Before a mediated cascade can be claimed, its temporal scaffolding must be established. A developmental cascade is, by definition, a claim about temporal direction: an earlier difficulty in one domain drives a later difficulty in another, and not merely the reverse (Masten & Cicchetti, 2010). A purely mediational or moderated-mediation model, however, can be reproduced by several different temporal arrangements, including a depression-driven account in which depressed adolescents subsequently withdraw, or a reciprocal account in which withdrawal and depression sustain each other. The present study therefore adopts a two-step analytic logic that mirrors this reasoning: it first models the prospective, cross-lagged connectivity among the constructs in an autoregressive cross-lagged framework that holds constant the substantial rank-order stability of each construct over time, and only then estimates the mediated and moderated pathways implied by that temporal ordering. The interpersonal literature gives reason to expect that the forward, withdrawal-to-depression direction will be the dominant prospective link: withdrawal removes the social participation, feedback, and belonging that maintain mood, so reduced engagement at one wave should foreshadow elevated depressive symptoms at the next (Coyne, 1976; Rubin et al., 2009), and Korean panel evidence is consistent with a

forward-leaning, if partly reciprocal, withdrawal–depression relationship over time (Kim & Cui, 2024). Establishing this directional structure is not a peripheral check but the precondition that licenses the mediation analysis that follows. Accordingly, in an autoregressive cross-lagged model that controls each construct's own stability across the three waves, the prospective cross-lagged path from earlier social withdrawal to later depression is expected to be positive and significant, and to be the dominant cross-construct direction across waves (Hypothesis 2). Confirming this temporal ordering provides the empirical warrant for then estimating, in the subsequent mediation model, how neglectful parenting reaches depression through social withdrawal.

Social Withdrawal as a Mediator (Propagating the Cascade)

Having established the temporal ordering, the next question is through what observable behavior the family-level vulnerability travels, and interpersonal and social-developmental accounts converge on social withdrawal as the carrier. The mechanism follows directly from the attachment account above: adolescents who learn at home that closeness is not reliably reciprocated generalize that expectation to peers, approach social situations with wariness, and withdraw, and consistent with this, low parental warmth and insecure attachment predict trajectories of social withdrawal across development (Rubin et al., 2009). This establishes the first leg of the mediated path. Withdrawal, in turn, is depressogenic through a self-perpetuating interpersonal cycle: withdrawn youth participate less, elicit less positive social feedback, and draw more rejection, which erodes the reassurance and belonging that sustain mood and thereby deepen depressive affect (Coyne, 1976), the second leg of the path. The two legs have been observed together in Korean adolescents, where social withdrawal and depression form a reciprocal cross-lagged relationship over time (Kim & Cui, 2024), and where withdrawal (with depression) has been shown to mediate the effect of neglectful parenting on later relational outcomes, with neglect carrying the larger indirect effect (Lim & Kim, 2025). Withdrawal is therefore not a mere correlate of the endpoints but a developmentally sequenced process variable: in cascade terms it is the mechanism that transfers the disturbance out of the family domain, into the peer/interpersonal domain, and onward to mood, which is exactly why it is positioned as the intervening variable rather than as a covariate. These considerations yield a composite mediation prediction with three logically linked parts. First, neglectful parenting at Time 1 should positively predict social withdrawal at Time 2 (the *a* path), as adolescents schooled in unreliable closeness retreat from peers. Second, social withdrawal at Time 2 should positively predict depression at Time 3 once neglect and prior depression are held constant (the *b* path), reflecting the interpersonal-deprivation cycle. Third and jointly, the indirect effect $a \times b$ should be positive and significant, with a bias-corrected bootstrap 95% confidence interval excluding zero (Hypothesis 3). Because the direct neglect–depression path from Hypothesis 1 is expected to survive entry of the mediator, the mediation is predicted to be partial rather than full, consistent with the cascade premise that neglect also reaches depression through routes beyond withdrawal alone (e.g., diminished self-worth or impaired emotion regulation).

Peer Relationship as a Moderator (Interrupting the Cascade)

If the harm of withdrawal is fundamentally interpersonal, a loss of belonging, feedback, and reassurance, then the quality of the very domain in which that loss is felt should determine how damaging withdrawal becomes. This is the logic of the stress-buffering model, which holds that supportive relationships blunt the impact of a stressor when the support on offer matches the demands the stressor imposes (Cohen & Wills, 1985); for an interpersonal stressor such as withdrawal, supportive peer ties supply exactly the matching resource: continued inclusion and positive regard that offset the deprivation withdrawal would otherwise produce. The prediction is not merely additive but interactive, and the developmental evidence makes the interaction concrete: anxious-solitary children followed across the early school years developed the most elevated depressive trajectories only when they were also excluded by peers, whereas comparably solitary children who were not excluded improved over time (Gazelle & Ladd, 2003). That dissociation is decisive for the present argument, because it shows that withdrawal is not uniformly depressogenic; its emotional cost is conditional on the peer context, which can either complete or interrupt the cascade. Converging adolescent evidence shows peer-support quality prospectively predicting and buffering depressive symptoms (Letkiewicz et al., 2023), and in Korean multicultural samples peer relationship has already been modeled as a moderator on the inhibition/withdrawal–depression pathway (Lee & Kim, 2021). Locating this buffer precisely matters: because the cascade reaches depression specifically through the interpersonal second stage, peer relationship is theorized to act on the withdrawal→depression conversion rather than on the family-level predictor that initiated the sequence. Three predictions follow. At the level of the model, the Peer Relationship × Social Withdrawal interaction should significantly and negatively predict depression (Hypothesis 4a), a negative sign indicating that higher peer-relationship quality reduces the strength of the withdrawal→depression association. At the level of the conditional effect, the positive slope of withdrawal on depression should be steepest when peer relationship is low (– 1 SD) and should flatten monotonically through the mean to high peer relationship (+ 1 SD), while remaining positive at every level, a buffering, not a reversing, interaction (Hypothesis 4b). Finally, the buffering should be path-specific: peer relationship is expected not to moderate the direct neglect→depression path (Hypothesis 4c), a discriminant prediction that is theoretically meaningful rather than a nuisance null, because the cascade framework places the peer resource at the interpersonal stage and therefore expects it to leave the family-level risk untouched.

An Integrated Moderated-Mediation Model (A Buffered Cascade)

The three preceding arguments do not stand independently; combined, they imply something stronger than any one of them alone: a conditional indirect effect. If neglect reaches depression by way of social withdrawal (Hypothesis 3), and if the withdrawal→depression link is itself weakened by supportive peers (Hypothesis 4), then the strength of the entire neglect→withdrawal→depression pathway must depend on peer relationship. The logic is sequential and follows the cascade: peer relationship is theorized to buffer the second stage of the mediated path, so its influence should propagate backward through the

chain, attenuating the whole indirect effect to the degree that the final, vulnerable stage is protected. The indirect effect should therefore be largest for adolescents with poor peer ties, who have nothing to interrupt the conversion of withdrawal into depression, and progressively smaller as peer-relationship quality rises. This conditional process is not only theoretically motivated but empirically tractable in MAPS, where a parallel moderated mediation using parental support as the buffer has already been demonstrated (Kwon, 2024); specifying peer relationship, rather than family resources, as the buffer of the interpersonal stage is the present study's distinct contribution. Two linked predictions capture this. First, the conditional indirect effect of neglectful parenting on depression through social withdrawal should remain positive and significant at all three probed levels of peer relationship (each bias-corrected bootstrap 95% CI excluding zero) yet decrease in magnitude as peer relationship rises, becoming largest at - 1 SD, smaller at the mean, and smallest at + 1 SD (Hypothesis 5a). Second, the index of moderated mediation, the product of the a path and the second-stage interaction coefficient, should be significant (Hypothesis 5b), formally confirming that the indirect effect varies as a function of peer relationship; because moderation is hypothesized only on the second stage, this conditioning is expected to arise specifically from the withdrawal→depression segment rather than from the first stage of the path.

Taken together, the five hypotheses describe a buffered developmental cascade: neglectful parenting initiates the sequence by establishing a depressogenic vulnerability (Hypothesis 1); the cascade's temporal ordering is established by the prospective, cross-lagged links among the constructs (Hypothesis 2); social withdrawal then propagates the vulnerability out of the family domain and into the peer and emotional domains (Hypothesis 3); the quality of peer relationships determines whether the final, interpersonal stage of the cascade is completed or interrupted (Hypothesis 4); and the full indirect pathway is therefore strongest for adolescents with poor peer ties and weakest for those with strong ones (Hypothesis 5). The model is thus a first-stage-constant, second-stage-moderated mediation, estimated only after its temporal scaffolding is confirmed; its conceptual structure is summarized in Fig. 1.

Figure 1

Conceptual Research Model: A Second-Stage Moderated-Mediation (Buffered Cascade) Model

Note

Standardized coefficients from the moderated-mediation model. The a path = neglectful parenting (T1) → social withdrawal (T2); the b path = social withdrawal (T2) → depression (T3); c' = the direct effect. Peer relationship (T3) moderates the b path via the Peer Relationship × Social Withdrawal interaction. Covariates omitted from the figure. *p < .05. ***p < .001.

Results

Participants

Participants were adolescents from multicultural families in the first-cohort panel of the Multicultural Adolescents Panel Study (MAPS), administered by the National Youth Policy Institute (NYPI) of Korea and publicly available through the NYPI Korean Children and Youth Data Archive (<https://www.nypi.re.kr/archive/mps>). A multicultural family was defined as a household in which at least one parent is of foreign origin. The first-wave panel comprised 1,635 students from 1,625 households, recruited through a two-stage design in which schools were first sampled through stratified random selection across 16 metropolitan and provincial regions and eligible students within sampled schools were then surveyed on a near-census basis. The present study drew on three consecutive waves, namely Wave 7 (2017; Time 1), Wave 8 (2018; Time 2), and Wave 9 (2019; Time 3), corresponding to the first, second, and third years of high school. At Wave 7, the time point that anchors the present analysis, 1,260 students responded, representing an original-sample retention rate of 77.1%, and female students slightly outnumbered male students (51.2% female). The corresponding figures were 1,197 respondents (73.2%) at Wave 8 and 1,146 (70.1%) at Wave 9, and the sex distribution remained stable across the panel. All structural models were estimated on the full first-wave panel ($N = 1,635$), with missing data arising from panel attrition and item nonresponse accommodated within the estimation framework.

Measures

All focal constructs were measured with multi-item self-report scales that the National Youth Policy Institute adapted from established Korean and international instruments, with item wording and provenance documented in the MAPS user guide (Yang et al., 2019). Unless otherwise noted, items were rated on 4-point Likert-type scales (1 = strongly disagree to 4 = strongly agree), and higher composite scores indicate higher levels of the construct. For each scale, internal consistency in the present sample is reported as Cronbach's α and composite reliability (ρ_c), and convergent validity as the average variance extracted (AVE); the full set of standardized loadings, reliabilities, and AVE values appears in Table 1, and discriminant validity is addressed in the measurement-model results below.

Neglectful parenting (Time 1). Adolescent-perceived neglectful parenting was operationalized as the degree to which adolescents perceive their parents (or guardians) as emotionally and behaviorally inattentive to them, and was assessed at Wave 7 with the neglect subscale of the parenting-attitude measure. The subscale items were constructed by Lee et al. (2011) by adapting the neglect items of Heo's (1999) parenting-attitude scale together with selected child-maltreatment items (Kim, 2003). Adolescents rated items such as "My parents (guardians) seem to consider outside matters more important than me" and "My parents (guardians) are not there when I need them" on a 4-point scale, with higher scores indicating more neglectful parenting. In prior panel applications of this scale, internal consistency has been acceptable to good (e.g., $\alpha = .81$ in a MAPS sample) (Park & Yang, 2020), and the neglect subscale has shown the expected pattern of associations with adjustment, positively predicting depression ($\beta = .26$) and negatively predicting self-esteem and school adjustment (Park & Yang, 2020),

supporting its construct validity. Internal consistency was likewise good in the present sample ($\alpha = .85$, $\rho_c = .85$), standardized loadings ranged from .60 to .83, and convergent validity was adequate (AVE = .54).

Social withdrawal (Time 2). Social withdrawal was operationalized as interpersonal reticence and discomfort in social situations, a tendency to shrink from contact and interaction with others, and was assessed at Wave 8 with the five-item scale originally developed by Kim and Kim (1998) and revised by Lee et al. (2011). Items capture difficulty initiating and sustaining contact with others (e.g., reticence in approaching peers) and were rated on a 4-point scale, with higher scores reflecting greater social withdrawal. Prior studies using the identical five-item instrument in Korean adolescent panels have reported excellent internal consistency (e.g., $\alpha = .91$ in KCYPS data) (Park et al., 2017), and have found social withdrawal to be positively associated with depression and inversely related to peer attachment, consistent with its placement among internalizing constructs (Park et al., 2017). Internal consistency was likewise excellent in the present sample ($\alpha = .91$, $\rho_c = .91$), standardized loadings ranged from .76 to .89, and convergent validity was strong (AVE = .67).

Peer relationship (Time 3). Peer relationship was operationalized as the perceived quality of supportive, accepting relationships with school friends, and was assessed at Wave 9 with the four-item adaptive peer-relationship scale used from Wave 7 onward. Items were drawn and adapted from Kim (2013) and Hwang (2006), with one item added by the research team (e.g., “My school friends understand me well”; “My school friends respect and care about me”), rated such that higher scores indicate more positive peer relationships. The school-adjustment short form from which items were drawn has shown good reliability for its social-relations subscale ($\alpha = .79$) and criterion validity, with that subscale correlating $r = .48$ with an established peer-relationship measure and the short-form total correlating $r = .75$ with a criterion school-adjustment scale (Kim, 2013). Internal consistency was excellent in the present sample ($\alpha = .91$, $\rho_c = .91$), standardized loadings ranged from .77 to .89, and convergent validity was strong (AVE = .73).

Depression (Time 3). Depression was operationalized as the frequency and intensity of depressive symptomatology (e.g., sadness, loss of interest, and related affect), and was assessed at Wave 9 with items adapted by Lee et al. (2011) from the depression subscale of the Simple Psychological Diagnostic Test (Kim et al., 1984). Adolescents rated each item on a 4-point scale, with higher scores indicating greater depressive symptoms; for the structural analyses the items were combined into two parcels. Prior panel applications of this 10-item scale have reported excellent internal consistency (e.g., $\alpha = .90$ in MAPS and $\alpha = .91$ in KCYPS data) (Park & Yang, 2020; Park et al., 2017), and depression measured with it has been positively associated with neglectful parenting and social withdrawal and negatively associated with school adjustment, consistent with theoretical expectations (Park & Yang, 2020; Park et al., 2017). Internal consistency was likewise excellent in the present sample ($\alpha = .90$, $\rho_c = .90$), standardized loadings were .87 and .94, and convergent validity was strong (AVE = .82).

Covariates. Five covariates with documented associations with adolescent internalizing problems and peer functioning were retained throughout the analyses: sex (0 = male, 1 = female), age, number of close friends, educational aspiration, and whether peers were aware of the adolescent's multicultural background (0 = not aware, 1 = aware). These variables were obtained from the interviewer-administered background module and the multicultural-experience module of the MAPS questionnaire.

Measurement Model

Prior to testing the structural hypotheses, a confirmatory factor analysis evaluated the four-factor measurement model (neglectful parenting at T1, social withdrawal at T2, peer relationship at T3, and depression at T3) in the full sample (N = 1,635). The model fit the data acceptably, $\chi^2(98) = 1164.25$, $p < .001$, CFI = .936, TLI = .922, NFI = .931, SRMR = .051, RMSEA = .082 (90% CI [.077, .086]). As shown in Table 1, all standardized factor loadings were substantial and significant, ranging from .60 to .94 ($ps < .001$). Composite reliability (rho_c) ranged from .845 to .913 and Cronbach's alpha from .852 to .915, both exceeding .70; the average variance extracted (AVE) ranged from .536 to .818, exceeding .50 for every construct. Discriminant validity was supported, as all heterotrait–monotrait (HTMT) ratios were well below .85 (largest = .468, social withdrawal with depression). Together these indices indicate adequate convergent and discriminant validity.

Table 1
Standardized Loadings, Reliability, and Convergent Validity of the Measurement Model

Construct / indicator	Loading	CR (rho_c)	AVE
Neglectful parenting (T1)		.845	.536
parenting_b01	.601		
parenting_b02	.660		
parenting_b03	.826		
parenting_b04	.810		
parenting_b05	.737		
Social withdrawal (T2)		.908	.667
withdrawal_01	.778		
withdrawal_02	.886		
withdrawal_03	.764		
withdrawal_04	.886		
withdrawal_05	.759		
Peer relationship (T3)		.913	.732
fr_rela_b01	.875		
fr_rela_b02	.880		
fr_rela_b03	.769		
fr_rela_b04	.893		
Depression (T3)		.899	.818
depression_01	.940		
depression_02	.867		
Note. N = 1,635. CR = composite reliability (rho_c); AVE = average variance extracted. All loadings significant at $p < .001$. Estimated in SmartPLS 4 (CB-SEM).			

Autoregressive Cross-Lagged Model

To establish the temporal ordering of the constructs across the three waves, an autoregressive cross-lagged (ARCL) model was estimated. The model fit the data well by the descriptive indices, $\chi^2(999) = 4318.41$, $p < .001$, CFI = .941, TLI = .933, NFI = .925, RMSEA = .045 (90% CI [.044, .047]), SRMR = .070; the significant chi-square is expected given the large sample. As shown in Table 2 and Fig. 2, every autoregressive path was strong and significant, with standardized coefficients of .42 to .69 ($ps < .001$),

indicating substantial rank-order stability across waves. Two cross-lagged paths were significant: social withdrawal (T2) positively predicted depression (T3), $\beta = .220$, $p < .001$, and peer relationship (T1) negatively predicted social withdrawal (T2), $\beta = -.062$, $p = .015$. In this fully autoregressive specification, the prospective cross-lagged paths from neglectful parenting to social withdrawal and to depression were not significant once prior levels of all constructs were controlled, indicating that the neglect effects operate primarily contemporaneously rather than over and above two-wave stability, which motivates the moderated-mediation specification reported next. Consistent with Hypothesis 2, the forward cross-lagged path from social withdrawal (T2) to depression (T3) was significant and positive ($\beta = .220$), confirming that the withdrawal-to-depression direction is the dominant prospective ordering across waves and establishing the temporal scaffolding for the mediation analysis that follows. Consistent with this adjacent-wave pattern, the prospective association of neglectful parenting (T1) with depression (T3) was small and nonsignificant ($\beta = .039$, $SE = .025$, $t = 1.58$, $p = .114$; see Table 2), indicating that, once each construct's stability is controlled, neglect reaches later depression only weakly within the cross-lagged framework.

Table 2
Standardized Autoregressive and Cross-Lagged Estimates for the Full Three-Wave Model

Path	β	SE	t	p
Autoregressive (stability) paths				
Neglectful parenting T1 → T2	.420	.034	12.54	< .001
Neglectful parenting T2 → T3	.562	.029	19.31	< .001
Social withdrawal T1 → T2	.639	.023	28.00	< .001
Social withdrawal T2 → T3	.688	.023	29.82	< .001
Peer relationship T1 → T2	.567	.027	21.14	< .001
Peer relationship T2 → T3	.610	.025	24.01	< .001
Depression T1 → T2	.522	.042	12.57	< .001
Depression T2 → T3	.454	.039	11.53	< .001
Cross-lagged paths				
Social withdrawal T2 → Depression T3	.220	.032	6.97	< .001
Peer relationship T1 → Social withdrawal T2	-.062	.026	2.44	.015
Peer relationship T1 → Depression T2	-.054	.034	1.58	.113
Peer relationship T2 → Social withdrawal T3	-.043	.028	1.55	.122
Peer relationship T2 → Depression T3	-.041	.033	1.26	.207
Neglectful parenting T1 → Social withdrawal T2	.002	.029	0.06	.955
Neglectful parenting T1 → Depression T2	.057	.037	1.57	.117
Neglectful parenting T2 → Social withdrawal T3	-.000	.028	0.01	.988
Neglectful parenting T2 → Depression T3	.030	.038	0.80	.423
Neglectful parenting T1 → Depression T3	.039	.025	1.58	.114

Note. N = 1,635. β = standardized path coefficient; SE = bootstrap standard error; estimates from 5,000 bootstrap subsamples in SmartPLS 4. All autoregressive paths and the two boldfaced cross-lagged paths (social withdrawal T2 → depression T3; peer relationship T1 → social withdrawal T2) were significant; the remaining cross-lagged paths were nonsignificant. Within-wave covariances among the four constructs were estimated but are omitted from the table.

Autoregressive Cross-Lagged Model Across Three Waves (T1–T2–T3)

Note

N = 1,635. Standardized coefficients. Solid lines denote significant paths and dashed lines nonsignificant paths. All autoregressive (stability) paths were significant; among the cross-lagged paths, only social withdrawal (T2) → depression (T3) and peer relationship (T1) → social withdrawal (T2) were significant, and the remaining paths, including neglectful parenting (T1) → depression (T3) ($\beta = .039$), were nonsignificant. Within-wave covariances and measurement indicators are omitted for clarity. * $p < .05$. *** $p < .001$.

Moderated Mediation

The moderated-mediation model tested whether social withdrawal (T2) mediated the neglectful parenting (T1) → depression (T3) association and whether peer relationship (T3) moderated the second stage, controlling for sex, age, number of close friends, educational aspiration, and whether peers were aware of the adolescent's multicultural background. As reported in Table 3, neglectful parenting significantly predicted social withdrawal ($\beta = .145$, $SE = .040$, $p < .001$) and depression ($\beta = .157$, $SE = .030$, $p < .001$), and social withdrawal in turn predicted depression ($\beta = .297$, $SE = .021$, $p < .001$). Peer relationship had a significant negative main effect on depression ($\beta = -.180$, $SE = .024$, $p < .001$). Consistent with H4a, the Peer Relationship × Social Withdrawal interaction significantly and negatively predicted depression ($\beta = -.055$, $SE = .026$, $p = .032$, 95% bias-corrected CI $[-.103, -.004]$); consistent with the discriminant prediction H4c, the Peer Relationship × Neglectful Parenting interaction on the direct path was not significant ($\beta = .034$, $SE = .039$, $p = .379$). Peer relationship thus buffered specifically the withdrawal–depression segment and not the neglect–depression path, exactly the pattern the model predicted. Among the covariates (also reported in Table 3), educational aspiration predicted lower social withdrawal ($\beta = -.154$, $p < .001$), female sex ($\beta = .100$, $p < .001$) predicted higher depression, and adolescents whose peers were aware of their multicultural background reported markedly lower depression ($\beta = -.247$, $p = .001$); a greater number of close friends predicted slightly lower withdrawal ($\beta = -.011$, $p = .028$), and age was unrelated to either outcome. All focal paths retained their significance with these covariates included, indicating that the cascade is not attributable to demographic confounding.

Table 3
Standardized Estimates of the Moderated-Mediation Model, Including Covariates

Predictor → Outcome	β	SE	t	p
Focal paths				
Neglectful parenting T1 → Social withdrawal T2	.145	.040	3.61	< .001
Neglectful parenting T1 → Depression T3	.157	.030	5.28	< .001
Social withdrawal T2 → Depression T3	.297	.021	13.97	< .001
Peer relationship T3 → Depression T3	-.180	.024	7.48	< .001
Peer rel. × Social withdrawal → Depression T3	-.055	.026	2.14	.032
Peer rel. × Neglectful parenting → Depression T3	.034	.039	0.88	.379
Covariates → Social withdrawal (T2)				
Sex (1 = female)	.065	.044	1.47	.142
Age	-.063	.059	1.06	.287
Number of close friends	-.011	.005	2.20	.028
Educational aspiration	-.154	.046	3.32	< .001
Peers aware of multicultural background	.060	.113	0.53	.598
Covariates → Depression (T3)				
Sex (1 = female)	.100	.030	3.31	< .001
Age	.009	.043	0.21	.832
Number of close friends	-.004	.003	1.39	.163
Educational aspiration	.061	.029	2.11	.035
Peers aware of multicultural background	-.247	.075	3.30	.001
Note. N = 1,635. β = standardized coefficient; SE = bootstrap standard error (5,000 subsamples, SmartPLS 4). Sex coded 0 = male, 1 = female; peers' awareness coded 0 = not aware, 1 = aware. Interaction terms used the two-stage approach with mean-centered scores. All focal paths retained their significance and direction with covariates included.				

Indirect and Conditional Indirect Effects

Supporting H2, the indirect effect of neglectful parenting (T1) on depression (T3) through social withdrawal (T2) was positive and significant, $\beta = .043$, SE = .012, $p < .001$, 95% bias-corrected bootstrap CI [.020, .068]; because the direct neglect–depression path remained significant, the mediation was partial. To probe the significant second-stage moderation (H4), the conditional indirect effect was

estimated at low (-1 SD), mean, and high ($+1$ SD) levels of peer relationship, and the simple slopes of social withdrawal on depression were plotted (Fig. 3, Table 4). The conditional indirect effect was strongest at low peer relationship ($B = .049$), intermediate at the mean ($B = .043$), and weakest at high peer relationship ($B = .037$), and all three bootstrap confidence intervals excluded zero. The corresponding simple slopes flattened as peer relationship increased (.336, .297, and .258 at -1 SD, mean, and $+1$ SD), confirming H4b and H5a: positive peer relationships progressively weakened the degree to which social withdrawal translated into depression, and therefore weakened the full indirect pathway from neglectful parenting to depression.

Table 4
Conditional Direct and Indirect Effects at Three Levels of Peer Relationship (T3)

Peer relationship	Simple slope (B)	Indirect effect (B)	95% bias-corrected CI
Low (-1 SD)	.336	.049	[.022, .079]
Mean	.297	.043	[.020, .068]
High ($+1$ SD)	.258	.037	[.016, .061]
Note. $N = 1,635$. Simple slope = conditional effect of social withdrawal (T2) on depression (T3); indirect effect = conditional indirect effect of neglectful parenting (T1) on depression (T3) via social withdrawal (T2). CIs from 5,000 bias-corrected bootstrap subsamples; all exclude zero. The index of moderated mediation corresponds to the Peer Relationship $\times$ Social Withdrawal coefficient ($\beta = -.055$, $p = .032$).			

Note

The slope of social withdrawal on depression is steepest at low peer relationship and flattens as peer relationship increases, illustrating the buffering (second-stage) moderation.

Discussion

This three-wave study of adolescents from multicultural families in Korea ($N = 1,635$) tested a second-stage moderated-mediation model and found support for all four hypotheses. Neglectful parenting at Time 1 was associated with greater depression at Time 3 both directly ($\beta = .157$) and indirectly through social withdrawal at Time 2 (indirect $\beta = .043$, 95% bias-corrected CI [.020, .068]), consistent with H1 and H2. The mediation was partial, indicating that neglect raises depression through more than withdrawal alone, plausibly through additional pathways such as low self-worth or impaired emotion regulation that future work could model.

The central contribution concerns the boundary condition. Peer relationship at Time 3 significantly and negatively moderated the social withdrawal $\rightarrow$ depression path ($\beta = -.055$, $p = .032$), and the simple slopes flattened monotonically as peer relationship rose (.336, .297, .258), supporting H4a and H4b. Crucially, peer relationship did not moderate the direct neglect $\rightarrow$ depression path ($\beta = .034$, $p = .379$), supporting the discriminant prediction H4c. The conditional indirect effect was therefore strongest when

peers were least supportive and weakest when peers were most supportive (H5). This pattern is consistent with the stress-buffering model and with diathesis–stress accounts of withdrawal: supportive peers appear to interrupt the specific, interpersonal step at which withdrawal becomes depressogenic, rather than offsetting the family-level risk itself.

These findings extend prior Korean panel research in three concrete ways. First, whereas Lim and Kim (2025) established a mediation-only cascade in which neglect reaches relational outcomes through withdrawal and depression, the present study adds a theoretically motivated second-stage moderator and locates it precisely: peer relationship buffered the withdrawal→depression segment ($\beta = -.055$) but left the direct neglect→depression path untouched ($\beta = .034$, ns), so the protective benefit of peers is path-specific rather than diffuse. Second, whereas Kwon (2024) demonstrated a parallel moderated mediation in MAPS using parental support as the buffer, the present model shows that a peer-level resource buffers the interpersonal stage of the cascade. This is a theoretically apt match, because the harm of withdrawal is itself a loss of peer belonging and feedback (Coyne, 1976; Gazelle & Ladd, 2003). The two buffers are thus complementary rather than redundant: family support and peer support appear to act on different links of the same sequence. Third, the magnitude of the buffering is interpretable rather than merely significant. As peer relationship rose from -1 SD to $+1$ SD, the withdrawal→depression slope fell from .336 to .258, an attenuation of roughly 23%, and the conditional indirect effect of neglect declined from .049 to .037. The effect is therefore a buffering rather than a reversing interaction: even well-connected withdrawn adolescents remained at elevated risk, so strong peer ties soften but do not sever the cascade. Read against the cross-lagged results, this pattern also clarifies the status of the neglect→depression link: the prospective neglect paths were nonsignificant once two-wave stability was partialled out, yet neglect retained robust direct and indirect associations in the covariate-adjusted moderated-mediation model, indicating that its influence operates largely through stable, contemporaneous vulnerability that withdrawal then carries forward rather than through fresh wave-to-wave increments.

Theoretical Implications

Theoretically, the results sharpen the developmental-cascade account in two respects. First, they show that a cascade is not an inexorable chain but a sequence with identifiable points of interruption: protective resources matter most when they are matched to the specific transition they are theorized to buffer. By placing the moderator on the second (interpersonal) stage and confirming that it acts there and not on the family-level predictor, the study supplies a clean empirical demonstration of stress-buffering and diathesis–stress logic (Cohen & Wills, 1985; Gazelle & Ladd, 2003) operating within a multi-domain cascade rather than on a single stressor in isolation. Second, integrating an autoregressive cross-lagged step with the moderated-mediation step illustrates a more disciplined way to claim a developmental cascade: because the directional scaffolding (withdrawal→depression as the dominant prospective link) was established before the mediated pathways were estimated, the mediation is interpretable as a temporally ordered process rather than as one of several arrangements that a cross-sectional mediation could equally support. That neglect’s prospective paths weakened under full

autoregressive control while its mediated influence persisted further suggests that family-level risk in this population is best modeled as a stable diathesis that withdrawal transmits, refining rather than contradicting attachment- and rejection-theoretic predictions (Bowlby, 1980; Rohner et al., 2005). For multicultural-adolescent research specifically, the results indicate that peer belonging operates as a culturally general protective mechanism: it buffered the interpersonal stage even in a sample carrying acculturative and minority-status stressors, consistent with PARTheory's cross-cultural claims.

Practical Implications

Practically, the path-specific buffering points to a concrete intervention leverage point. Because family-level neglect is often difficult to alter directly, especially in immigrant-mother households facing acculturative and economic strain, the finding that peer-relationship quality attenuates the withdrawal→depression conversion identifies a more modifiable target. School counselors and youth workers serving multicultural adolescents could prioritize the subgroup that is both withdrawn and weakly connected to peers, because the cascade was strongest precisely there (conditional indirect effect largest at low peer relationship). Interventions that build genuine peer belonging, such as structured cooperative classroom activities, peer-mentoring or buddy systems, and small-group social-skills programs that create repeated positive contact, are more likely to interrupt the depressogenic step than programs that target mood symptoms in isolation, because they supply the inclusion and positive feedback whose absence makes withdrawal harmful. The covariate findings reinforce a related, low-cost lever: adolescents whose peers were aware of their multicultural background reported markedly lower depression ($\beta = -.247$), suggesting that fostering openness and acceptance of multicultural identity within the peer group, rather than its concealment, may itself be protective. At the same time, the buffering was partial, so peer-focused programming should complement, not replace, efforts to support parenting and to screen for early withdrawal; the most efficient prevention strategy addresses the cascade at more than one link.

Limitations and Future Directions

Several limitations qualify the conclusions. All constructs were adolescent self-reports, so shared-method variance may inflate some associations; the autoregressive cross-lagged analysis showed that the prospective neglect paths were not significant once two-wave stability was controlled, indicating that the moderated-mediation estimates are best read as a temporally ordered process model rather than as definitive causal effects. The sample comprised adolescents with predominantly Korean-father/immigrant-mother families, so generalization to other family structures is uncertain. Finally, peer relationship was measured at Time 3 concurrently with depression; although theoretically positioned as a buffer of the second stage, its temporal precedence over the outcome cannot be fully established, and future designs that measure the moderator before the outcome would strengthen the causal interpretation.

Conclusion

In this three-wave panel of Korean multicultural adolescents, neglectful parenting forecast later depression both directly and through social withdrawal (indirect $\beta = .043$), and supportive peer relationships buffered the second, interpersonal stage specifically: the withdrawal→depression slope fell by roughly a quarter from low to high peer support (.336 to .258), while the direct family-level risk was left unchanged. The cascade was therefore strongest for withdrawn adolescents with the weakest peer ties. Strengthening peer-relationship quality is thus a concrete, modifiable target for preventing depression in this growing population, most useful as a complement to, rather than a substitute for, support aimed at the family.

Declarations

Ethics approval and consent to participate

Not applicable. This study is a secondary analysis of fully de-identified, publicly available panel data from the Multicultural Adolescents Panel Study (MAPS); informed consent was obtained from participants and their guardians by the National Youth Policy Institute in the original survey.

Consent for publication

Not applicable.

Clinical Trial Registration

Not applicable. This study is not a clinical trial.

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Competing Interests

The authors declare that they have no competing interests.

Data Availability

The data that support the findings of this study are publicly available from the Multicultural Adolescents Panel Study (MAPS), administered by the National Youth Policy Institute (NYPI) of Korea, through the NYPI Korean Children and Youth Data Archive at <https://www.nypi.re.kr/archive/mps>.

Author Contribution

Shanshu He conceptualized the study, conducted the statistical analyses, and drafted the manuscript. Suyeon Lee contributed to the study design and the interpretation of the findings and provided critical

revisions. Ji Jun Lim contributed to the literature review, data preparation, and manuscript revision. Yiran Li supervised the research process, provided critical revisions, and approved the final version of the manuscript. All authors have read and approved the final manuscript.

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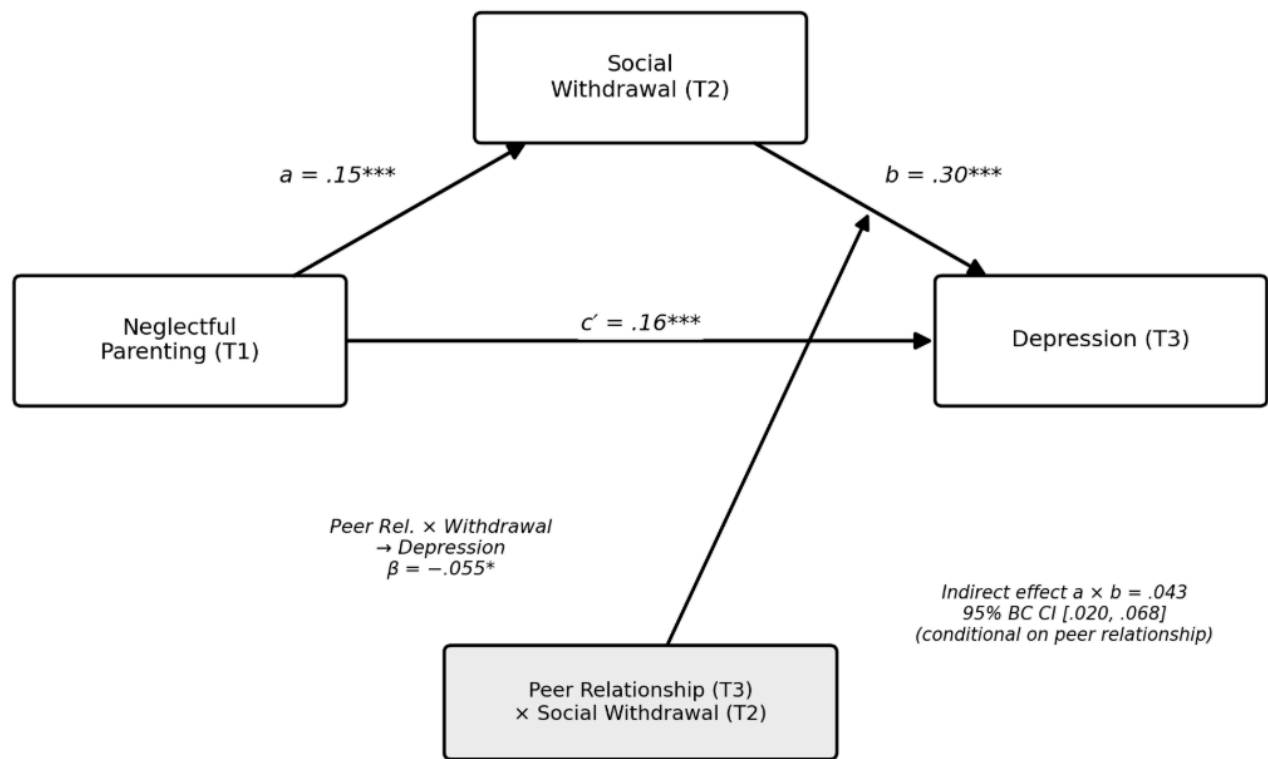
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Figures

Research Model: Second-Stage Moderated Mediation



* $p < .05$. *** $p < .001$. Standardized coefficients; covariates omitted from figure.

Figure 1

Conceptual Research Model: A Second-Stage Moderated-Mediation (Buffered Cascade) Model

Note. Standardized coefficients from the moderated-mediation model. The a path = neglectful parenting (T1) $\rightarrow$ social withdrawal (T2); the b path = social withdrawal (T2) $\rightarrow$ depression (T3); c' = the direct effect. Peer relationship (T3) moderates the b path via the Peer Relationship $\times$ Social Withdrawal interaction. Covariates omitted from the figure. * $p < .05$. *** $p < .001$.

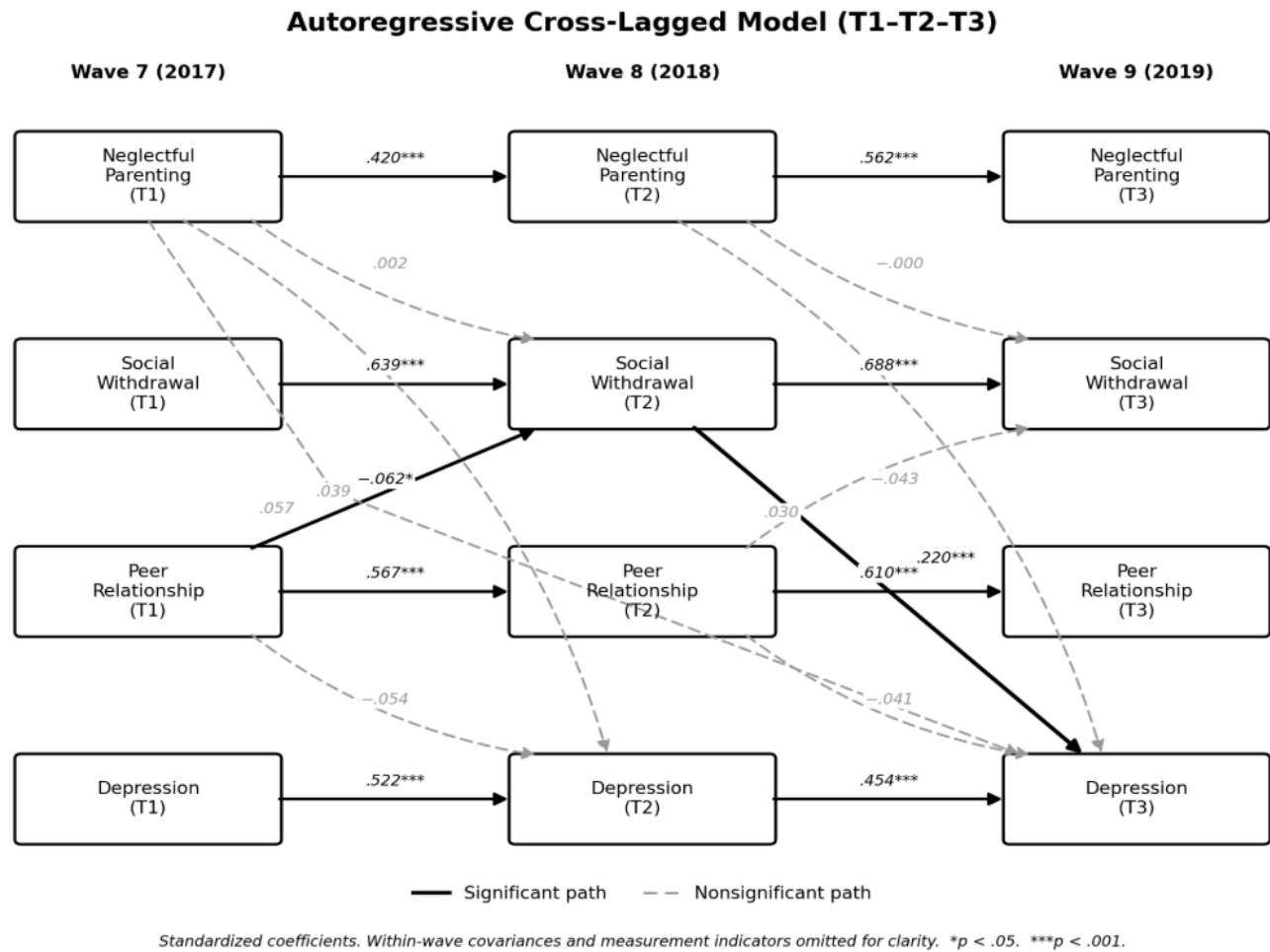


Figure 2

Autoregressive Cross-Lagged Model Across Three Waves (T1–T2–T3)

Note. $N = 1,635$. Standardized coefficients. Solid lines denote significant paths and dashed lines nonsignificant paths. All autoregressive (stability) paths were significant; among the cross-lagged paths, only social withdrawal (T2) $\rightarrow$ depression (T3) and peer relationship (T1) $\rightarrow$ social withdrawal (T2) were significant, and the remaining paths, including neglectful parenting (T1) $\rightarrow$ depression (T3) ($\beta = .039$), were nonsignificant. Within-wave covariances and measurement indicators are omitted for clarity. * $p < .05$. *** $p < .001$.

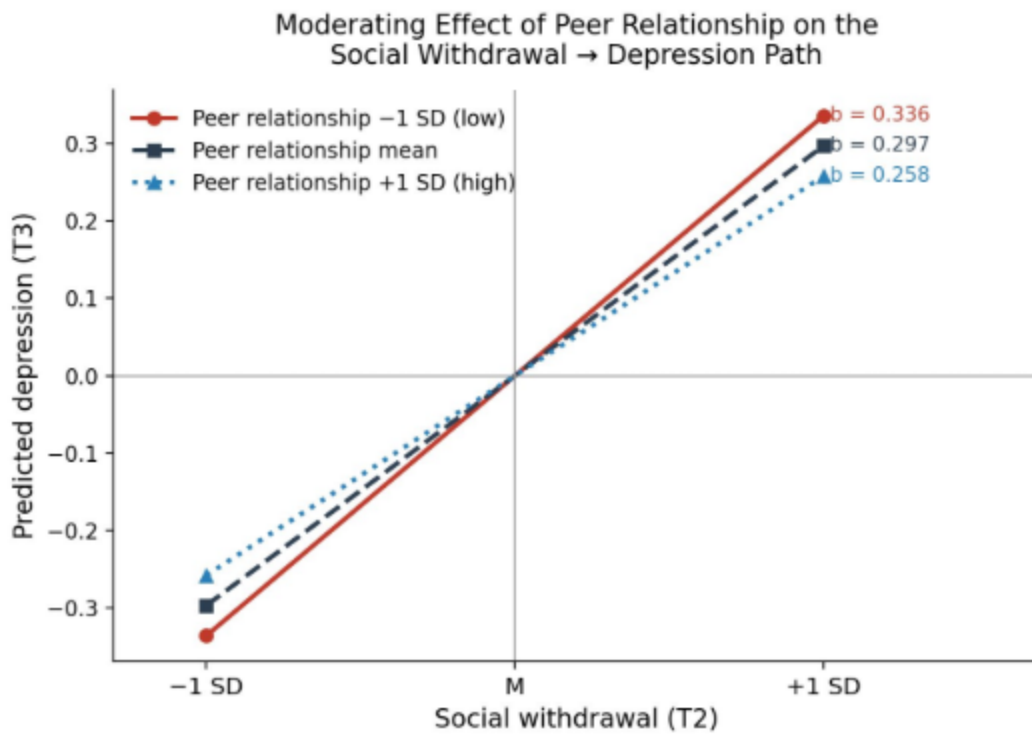


Figure 3

Simple Slopes of Social Withdrawal (T2) Predicting Depression (T3) at Three Levels of Peer Relationship (T3)

Note. The slope of social withdrawal on depression is steepest at low peer relationship and flattens as peer relationship increases, illustrating the buffering (second-stage) moderation.