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Comparison of the Effectiveness of Parenting-Based Identity Formation Training and Positive Youth Development Training on Social Interaction Quality and Gender Schemas in Adolescent Girls

Maryam. Tabandeh[1], Ali. Mahdad[1*], Ilnaz. Sajjadian[1]

[1] Department of Psychology, Isf.C., Islamic Azad University, Isfahan, Iran.

*** Corresponding author email address**: amahdad@khuisf.ac.ir

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A B S T R A C T

Objective: This study aimed to compare the effectiveness of parenting-based identity formation training and positive youth development training on social interaction quality and gender schemas in adolescent girls.

Methods and Materials: The present research employed a quasi-experimental design with three stages: pretest, posttest, and follow-up, including a control group. The statistical population consisted of adolescent girls in Isfahan during the spring of 2024. From this population, 45 adolescent girls were selected through convenience sampling and assigned to three groups (15 participants per group). The Glass Social Interaction Quality Scale (1994) and the Bem Sex Role Inventory (1981) were administered to measure the dependent variables across the three stages. Both experimental groups participated in ten 60-minute training sessions, while the control group received no intervention. Data were analyzed using repeated measures analysis of variance and the Bonferroni post hoc test via SPSS version 26.

Findings: The results showed a significant difference in social interaction quality between the parenting-based identity formation and positive youth development training groups compared to the control group, and in gender schema variables, a significant difference was observed only between the two intervention groups and the control group ($p < .01$). Furthermore, parenting-based identity formation training proved to be more effective than positive youth development training in improving social interaction quality and modifying gender schemas.

Conclusion: Given the results, it is recommended that these two training approaches be incorporated into adolescent psychological counseling centers.

Keywords: *Parenting-based identity formation training, positive youth development training, social interaction quality, gender schemas, adolescent girls*

1. Introduction

Adolescence is a crucial developmental period characterized by significant biological, psychological, and social transitions that shape one's sense of identity and social functioning. During this stage, individuals strive to form a coherent sense of self while navigating changing social expectations and cognitive maturation (Zhang & Qin, 2023). Identity formation has been defined as a dynamic process of exploration and commitment through which adolescents construct their values, beliefs, and social roles (Crocetti, 2017). The challenge of achieving a stable identity becomes more pronounced in modern contexts, where rapid sociocultural transformations, digital interactions, and shifting parental roles have intensified adolescents' exposure to conflicting social norms (Soh et al., 2024). Adolescents who fail to establish an integrated identity may experience difficulties in social relationships, low self-esteem, and maladaptive gender role schemas, which can hinder their personal and social development (Chao, 2022). Therefore, the implementation of structured developmental and educational interventions to support adolescents in identity consolidation and positive psychosocial functioning is a central concern for developmental psychologists and educators (Lerner, 2021).

Theories of identity development, originating from Erikson's psychosocial framework and later expanded by researchers such as Crocetti, Pfeifer, and Christiaens, emphasize that identity is not a static achievement but an ongoing negotiation between personal agency and social context (Christiaens et al., 2021; Pfeifer & Berkman, 2018). This dynamic is particularly visible during adolescence, when cognitive flexibility, emotional regulation, and social competence interact to determine self-definition and moral reasoning (Zhang & Qin, 2023). Recent neurodevelopmental findings show that identity formation involves complex neural circuits linked to motivation, value-based decision-making, and self-referential processing (Pfeifer & Berkman, 2018). From a sociocultural standpoint, adolescents' identities are shaped through dialogue with peers, parents, and social institutions (Hu & Cheung, 2024). Social identity theory further underscores the role of group belonging and social integration in supporting adolescents' emotional adjustment and social well-being (Hu & Cheung, 2024). The quality of peer interactions and parental communication significantly predicts the development of adaptive social and gender schemas, fostering self-efficacy and resilience (Johnson & Ettekal, 2023; Morelli et al., 2023).

Parental influence plays an especially critical role in the identity formation process. Parenting styles characterized by warmth, responsiveness, and autonomy support have been consistently linked to adolescents' identity achievement and emotional regulation (Karimi-Moghadam et al., 2023). In contrast, rigid or neglectful parenting practices often contribute to identity diffusion and internalizing symptoms (Hosseinabad et al., 2019). Schema-based parenting interventions, which emphasize the correction of cognitive distortions and the nurturing of emotional connection, have been found effective in enhancing resilience and adaptive coping mechanisms among adolescents (Karimi-Moghadam et al., 2023). These findings align with the person–context interaction model, suggesting that adolescents are not passive recipients of parental behavior but active co-constructors of their developmental environments (Lerner, 2021).

Simultaneously, gender schema development represents another essential dimension of adolescent identity. Gender role attitudes, shaped by cultural, familial, and educational factors, influence adolescents' perceptions of themselves and others (Ullrich et al., 2022). Studies demonstrate that equitable parental modeling and social exposure promote flexible gender schemas, while restrictive or stereotypical patterns reinforce social and emotional limitations (Ghobadi & Heydari, 2020; Landry et al., 2020). Adolescents with more adaptive gender schemas show greater empathy, communication competence, and emotional maturity, which enhance social interactions and personal autonomy (Hjerm et al., 2018). Thus, educational and family-based interventions aimed at reshaping gender schemas can contribute to healthier identity outcomes and interpersonal functioning (Ullrich et al., 2022).

Within this context, the Positive Youth Development (PYD) framework has emerged as a comprehensive model that seeks to strengthen adolescents' internal and external assets through skill-building, civic engagement, and moral competence (Johnson & Ettekal, 2023; Martin-Barrado & Gomez-Baya, 2024). PYD moves beyond deficit-based perspectives by emphasizing adolescents' potential for thriving and community contribution (Lerner, 2021). The model's core "Five Cs"—Competence, Confidence, Connection, Character, and Caring—serve as indicators of successful youth development (Johnson & Ettekal, 2023). Empirical studies across diverse cultural contexts have demonstrated the effectiveness of PYD programs in

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improving adolescents' self-esteem, empathy, and prosocial behavior (Milot Travers & Mahalik, 2021; Zhu et al., 2025). These outcomes are associated with enhanced social integration, academic engagement, and reduced risk behaviors (Alizadeh et al., 2020; Hosseinabad et al., 2020). Moreover, PYD-based educational interventions that integrate spiritual and cognitive skill training have been found to foster emotional balance and moral reasoning, thus reinforcing identity coherence (Asgarpour & Chahrazad, 2023; Hosseinabad et al., 2020).

Research also indicates that social and emotional learning environments can promote identity and social competence by encouraging reflective dialogue and cooperative interaction (Chater et al., 2022; Morelli et al., 2023). The development of empathy, self-awareness, and effective communication are recognized as mediators between moral intelligence and identity achievement (Asgarpour & Chahrazad, 2023). Additionally, positive interaction with peers and teachers enhances adolescents' sense of belonging and social self-efficacy (Riewestahl et al., 2023). Studies by Zhu et al. (2025) and Iloponu et al. (2025) further suggest that supportive interpersonal relationships in educational settings contribute to learning engagement and identity formation, particularly in multicultural or linguistically diverse contexts (Iloponu et al., 2025; Zhu et al., 2025). These findings emphasize the interdependence between social connectedness, cognitive development, and the consolidation of a stable self-concept during adolescence.

Despite the positive influence of developmental interventions, contemporary adolescents face unique challenges in forming coherent identities due to the digitalization of social life (Soh et al., 2024). Online environments expose adolescents to a multitude of social comparisons, identity experimentation, and virtual interactions that may either expand or fragment their sense of self (Riewestahl et al., 2023). Digital identity formation involves negotiating authenticity and self-presentation across virtual and offline contexts, often producing psychological tension between belonging and individuality (Soh et al., 2024). As social media becomes a dominant arena for peer validation, adolescents' self-concept and emotional well-being increasingly depend on digital feedback mechanisms, necessitating interventions that cultivate critical reflection and emotional regulation in virtual spaces (Chater et al., 2022).

Cross-cultural studies have further demonstrated that adolescents' identity processes are deeply embedded within societal structures, such as education systems and community values (Christiaens et al., 2021; Martin-Barrado & Gomez-Baya, 2024). Cultural variations in parental expectations and socialization practices shape the content and trajectory of identity commitments (Horn, 2019). In collectivist societies, identity formation often involves aligning personal goals with family and community expectations, while in individualist contexts, self-expression and autonomy take precedence (Landry et al., 2020). Nonetheless, across both contexts, the need for social belonging and self-consistency remains universal (Hu & Cheung, 2024). Educational and therapeutic models that integrate cultural sensitivity into developmental training are therefore essential for fostering authentic identity growth and cross-gender understanding (Ghobadi & Heydari, 2020; Hosseinabad et al., 2020).

The effectiveness of identity-based and PYD-oriented interventions also depends on their capacity to promote emotional intelligence and meaning-making. Adolescents who can interpret life experiences within coherent narratives exhibit greater psychological well-being and adaptability (Swanepoel, 2021). Meaning-making processes allow individuals to reframe challenges as opportunities for growth, leading to enhanced social interaction quality and moral reasoning (Horn, 2019). Moreover, interventions that strengthen adolescents' sense of agency and purpose have been linked to reductions in depressive symptoms, risk behaviors, and social withdrawal (Alizadeh et al., 2020; Milot Travers & Mahalik, 2021). Empathy, compassion, and critical thinking act as protective factors that facilitate emotional resilience and positive identity construction (Chao, 2022).

Recent studies suggest that combining PYD approaches with family-based identity training—such as parenting-based identity formation programs—may yield the most sustainable developmental outcomes (Hosseinabad et al., 2019; Karimi-Moghadam et al., 2023). These integrative frameworks foster dialogue between adolescents and their parents, helping both parties redefine expectations, communication patterns, and emotional understanding (Asgarpour & Chahrazad, 2023). Furthermore, they help adolescents internalize adaptive social norms and gender roles while maintaining autonomy and critical self-reflection (Ullrich et al., 2022). The inclusion of moral and spiritual components enhances the ethical dimension of identity, linking personal growth with social responsibility and prosocial engagement (Lerner, 2021).

In conclusion, adolescence represents a pivotal period for identity consolidation, gender schema development, and

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social competence formation. Interventions such as parenting-based identity formation and positive youth development training address complementary aspects of this developmental process: the former strengthens emotional and familial foundations, while the latter cultivates psychological assets and social capabilities. This study aimed to compare the effectiveness of parenting-based identity formation training and positive youth development training on social interaction quality and gender schemas in adolescent girls.

2. Methods and Materials

2.1. Study Design and Participants

The present study was a three-group quasi-experimental design, including a parenting-based identity formation training group, a positive youth development training group, and a control group, conducted in three stages: pretest, posttest, and a two-month follow-up. The statistical population consisted of female high school students in Isfahan during the spring of 2024. A total of 45 adolescent girls (15 participants per group) were selected through convenience sampling based on the inclusion criteria and then randomly assigned to three groups using a simple random (lottery) method. The sample size was determined according to the recommendation of at least 15 participants per group in experimental studies (Gall et al., 2007).

The inclusion criteria included obtaining written informed consent from the adolescents and their parents, willingness to participate in the study, acceptance and commitment to group training principles and rules, absence of chronic psychological disorders such as bipolar disorder or schizophrenia and chronic physical illnesses, not receiving simultaneous parallel training, and being within the age range of 14 to 17 years. The exclusion criteria included lack of cooperation or unwillingness to continue participation in training sessions, failure to complete assignments, and absence from two or more sessions. In addition to obtaining an ethics approval code, ethical principles such as confidentiality, use of data solely for research purposes, complete autonomy and freedom of participants to continue participation, and providing full disclosure of results upon request were observed. The control group received its training after the completion of interventions for the two experimental groups. The following instruments were used in the study.

After the random assignment of participants into the two experimental groups and one control group, all participants completed the Social Interaction Quality Questionnaire and the Bem Sex Role Inventory in the pretest stage. Subsequently, the two experimental groups participated in their respective training programs in a group format at a counseling center. After completing the training sessions, all participants from the three groups completed the same questionnaires in the posttest stage, and again two months later in the follow-up stage. Both the parenting-based identity formation training and positive youth development training programs consisted of ten 60-minute sessions held once per week over ten consecutive weeks, conducted by a trainer with more than ten years of experience working with adolescents. The control group did not receive any training until both experimental programs were completed.

2.2. Measures

The Social Interaction Quality Questionnaire was developed by Carol Glass (1994) to assess individuals' perceptions of their social relationships. The questionnaire contains 30 items and can be used both for normal populations and those with psychological disorders. It measures both positive and negative thoughts regarding the quality of social relationships. Responses are rated on a 5-point Likert scale ranging from 1 ("This thought has never occurred to me") to 5 ("This thought always occurs to me"). The instrument provides two subscale scores—positive and negative thoughts. By reverse scoring the negative items, a total score for social interaction quality can be obtained, which reflects a positive construct. Glass (1994) reported high test–retest reliability, with coefficients of 0.96 over a two-month interval and 0.84 over a one-month interval. Kobayashi (2000, as cited in Yazdkhasti, 2010) reported a Cronbach's alpha of 0.85. Yazdkhasti (2010) also provided evidence for divergent validity, showing a significant negative correlation between SIQQ scores and anger scale scores. In the present study, the Cronbach's alpha coefficient for the questionnaire was 0.75.

The Bem Sex Role Inventory, which measures gender schemas, was developed by Bem (1974, as cited in Bem, 1981). The questionnaire includes 60 descriptive adjectives rated on a 7-point Likert scale ranging from 1 ("Never or almost never true") to 7 ("Always or almost always true"). Of the 60 items, 20 assess feminine gender schemas, 20 assess masculine gender schemas, and 20 are neutral. Items such as 1, 4, 7, etc., represent masculine traits; items 2, 5, 8, etc., represent feminine traits; and items 3, 6, 9, etc., are neutral. Bem (1981) reported a correlation of 0.99 between

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the short and long forms of the inventory, indicating excellent reliability. Hejazi and Rezadoost (2012) validated the Persian version in Iran, providing evidence for its reliability and validity. For instance, a significant correlation was reported between BSRI scores and the Friendship Patterns Questionnaire. Cronbach's alpha coefficients for the feminine and masculine subscales were 0.76 and 0.78, respectively, and test–retest reliability with a 15-participant sample was 0.78 for masculine and 0.75 for feminine schemas (Hejazi & Rezadoost, 2012). In the present study, Cronbach's alpha coefficients for the masculine and feminine gender schemas were 0.78 and 0.70, respectively.

2.3. Intervention

After administering the pretests, the experimental group participated in cognitive-analytic group therapy consisting of eight sessions, each lasting 90 minutes, while the control group remained on a waiting list for two months. The intervention protocol followed the treatment manual of Ryle and Kerr (1999) and was structured to progressively enhance therapeutic alliance, self-awareness, and behavioral change. In the first session, rapport was established, group therapy rules were introduced, patients' histories were collected, and participants were provided with an overview of Cognitive Analytic Therapy (CAT), concluding with identifying target problems and compiling a problem list. The second session emphasized reviewing homework, reformulating problems using personal history, and identifying maladaptive sequential patterns and reciprocal roles, with patients practicing self-reflection. The third session focused on intrusive thoughts, particularly suicidal ideation, maladaptive beliefs, and repetitive behavioral cycles, encouraging patients to draft a reformulated letter that highlighted these problematic patterns. The fourth session emphasized metacognitive awareness through the recognition of problematic routines, experiential avoidance, and the review of depressive symptoms, supported by the use of visual mapping to illustrate key traps and dilemmas. In the fifth session, patients revisited and challenged long-standing acquired patterns through interpersonal exploration, learning strategies to revise maladaptive routines and relationships, and preparing diagrams and reflective letters to support change. The sixth session targeted behavioral relearning, with emphasis on the influence of emotions and behaviors on experiential avoidance and the persistence of borderline personality-related schemas, such as abandonment, rejection, impaired functioning, and hypervigilance; patients drew diagrams for re-evaluating avoidant patterns and coping strategies. The seventh session concentrated on creating change through insight and awareness, enabling patients to trace the developmental trajectory of their problems, reduce cognitive preoccupations, and improve the regulation of emotions, thoughts, and behaviors by recording emotionally intelligent thoughts. Finally, the eighth session marked the termination of therapy, during which patients wrote farewell letters summarizing reasons for referral, treatment achievements, ongoing challenges, and future strategies, followed by posttest assessments. Across all sessions, participants were expected to engage in therapeutic homework designed to reinforce awareness, reduce worry and experiential avoidance, and foster improved personality organization.

2.4. Data Analysis

In the statistical analysis of the data, in addition to testing the required assumptions such as the normality assumption using the Shapiro–Wilk test, the assumption of homogeneity of error variances using Levene's test, the assumption of equality of variance–covariance matrices, and the sphericity assumption using Mauchly's test, the mean and standard deviation were calculated, followed by repeated measures analysis of variance and the Bonferroni post hoc test. The data were analyzed using SPSS software, version 26. The acceptable significance level for this study was considered between .05 (minimum) and .001 (maximum).

3. Findings and Results

Table 1 presents the three research groups in terms of demographic variables, including age, father's education, and mother's education.

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Table 1

Comparison of the Frequency of Research Groups in Demographic Variables

Variable and Levels	Control Group Frequency (%)	Positive Youth Development Group Frequency (%)	Parenting-Based Identity Formation Group Frequency (%)	Chi-Square (p-value)
Age				4.23 (p = .19)
Up to 35 years	2 (13.33)	3 (20.00)	5 (33.33)	
36–45 years	12 (80.00)	11 (73.33)	8 (53.33)	
46 years and above	1 (6.67)	1 (6.67)	2 (13.33)	
Father's Education				6.42 (p = .60)
Below high school diploma	4 (26.67)	3 (20.00)	2 (13.33)	
High school diploma	0 (0.00)	1 (6.67)	4 (26.67)	
Associate degree	5 (33.33)	6 (40.00)	4 (26.67)	
Bachelor's degree	5 (33.33)	4 (26.67)	4 (26.67)	
Master's degree and above	1 (6.67)	1 (6.67)	1 (6.67)	
Mother's Education				7.09 (p = .53)
Below high school diploma	2 (13.33)	1 (6.67)	3 (20.00)	
High school diploma	6 (40.00)	2 (13.33)	5 (33.33)	
Associate degree	2 (13.33)	4 (26.67)	3 (20.00)	
Bachelor's degree	4 (26.67)	7 (46.67)	2 (13.33)	
Master's degree and above	1 (6.67)	1 (6.67)	2 (13.33)	

As shown in Table 3, there were no significant differences among the three groups in terms of age, father's education, and mother's education. Table 2 presents the mean and standard deviation of social interaction quality and gender schemas for the three research groups across the pretest, posttest, and follow-up stages.

Table 2

Mean and Standard Deviation of Social Interaction Quality and Gender Schemas in Research Groups Across Three Time Stages

Variable	Time	Control Group Mean (SD)	Positive Youth Development Group Mean (SD)	Parenting-Based Identity Formation Group Mean (SD)
Social Interaction Quality	Pretest	49.73 (6.55)	52.47 (5.42)	51.33 (3.24)
	Posttest	50.33 (7.01)	63.13 (7.69)	78.87 (3.99)
	Follow-up	48.67 (6.53)	66.60 (6.87)	83.73 (3.61)
Feminine Gender Schemas	Pretest	49.53 (7.30)	46.00 (6.58)	46.60 (4.63)
	Posttest	49.67 (6.22)	56.27 (5.80)	67.47 (7.15)
	Follow-up	50.20 (6.87)	59.67 (6.31)	73.27 (6.84)
Masculine Gender Schemas	Pretest	73.00 (11.22)	76.00 (23.48)	70.00 (6.60)
	Posttest	72.73 (10.63)	68.13 (17.62)	52.80 (9.98)
	Follow-up	72.93 (10.90)	63.60 (15.52)	46.87 (6.43)

As shown in Table 4, the means of *social interaction quality* and *gender schemas* for the *positive youth development* and *parenting-based identity formation* groups exhibited greater changes compared to the control group in both the posttest and follow-up stages.

Before performing the repeated measures ANOVA, the results of the Shapiro–Wilk test for *social interaction quality* and *gender schemas* indicated that both variables were normally distributed ($p \geq .05$). Levene's test results confirmed the homogeneity of variances across the study groups for both variables ($p \geq .05$). The Box's M test for *social interaction quality* and *gender schemas* showed equality of the variance–covariance matrices. Finally, the nonsignificant Mauchly's test result for *social interaction*

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quality indicated that the assumption of sphericity was met for this variable ($p \geq .05$), whereas a significant Mauchly's test for *gender schemas* showed that the sphericity assumption was violated. Therefore, for the *gender schemas* variable, results were reported using epsilon corrections and the Greenhouse–Geisser statistic. Table 3 presents the results of repeated measures analysis of variance for *social interaction quality* and *gender schemas* (feminine and masculine).

Table 3

Results of Repeated Measures Analysis of Variance for Social Interaction Quality and Gender Schemas

Variable and Source of Effect	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Power
Social Interaction Quality							
Within-group	Time	6028.50	2	3014.25	578.19	.001	.93
	Time × Group	4778.25	4	1194.56	229.14	.001	.92
	Error (Time)	437.91	84	5.21	—	—	—
Between-group	Group	10630.10	2	5315.05	57.20	.001	.73
	Error	3902.76	42	92.92	—	—	—
Feminine Gender Schema							
Within-group	Time	4351.35	1.14	3813.97	192.77	.001	.82
	Time × Group	2606.61	2.28	1142.35	57.74	.001	.73
	Error (Time)	948.04	47.92	19.78	—	—	—
Between-group	Group	3949.75	2	1974.87	19.27	.001	.48
	Error	4303.96	42	102.47	—	—	—
Masculine Gender Schema							
Within-group	Time	3357.57	1.19	2820.66	148.42	.001	.78
	Time × Group	2154.96	2.38	950.18	47.63	.001	.69
	Error (Time)	950.13	49.99	19.01	—	—	—
Between-group	Group	6616.01	2	3308.00	6.50	.003	.24
	Error	21373.20	42	508.89	—	—	—

As shown in Table 3, for social interaction quality, in the within-group section, both the main effect of time *($F(2,84) = 578.19, p < .05$)* and the interaction between time and group *($F(4,84) = 229.14, p < .05$)* were significant. This indicates that there were significant differences in *social interaction quality* scores among the pretest, posttest, and follow-up stages, as well as a significant interaction between time and group across the three research groups *($p < .01$)*. Additionally, as indicated in the between-group section of Table 3, there was a significant difference among the three groups in *social interaction quality* *($F(2,42) = 57.20, p < .05$)*, meaning that the analysis of variance revealed at least one group differed significantly from the others regarding *social interaction quality*.

As also shown in Table 3, for feminine gender schemas, in the within-group section, both the main effect of time *($F(1.14,47.92) = 192.77, p < .05$)* and the interaction between time and group *($F(2.28,47.92) = 57.74, p < .05$)* were significant. This indicates significant differences in *feminine gender schema* scores among the pretest, posttest, and follow-up stages and a significant interaction between time and group *($p < .01$)*. Furthermore, as shown in the between-group section of Table 3, there was a significant difference among the three groups in *feminine gender schemas* *($F(2,42) = 19.27, p < .05$)*, suggesting that at least one group differed significantly from the others in this variable.

As shown again in Table 3, for masculine gender schemas, the within-group analysis revealed that both the main effect of time *($F(1.19,49.99) = 148.42, p < .05$)* and the time × group interaction *($F(2.38,49.99) = 47.63, p < .05$)* were significant. This indicates that there were significant differences in *masculine gender schema* scores across pretest, posttest, and follow-up stages, as well as significant time–group interaction effects across the three study groups *($p < .01$)*. Similarly, the between-group section in Table 3 shows that the differences in *masculine gender schemas* among the three research groups were significant *($F(2,42) = 6.50, p < .05$)*, meaning that at least one of the experimental groups differed significantly from the others in *masculine gender schemas*.

Table 4 presents the results of the Bonferroni post hoc test for pairwise group comparisons in *social interaction quality* and *gender schemas*.

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Table 4

Results of the Bonferroni Post Hoc Test for the Variables of Social Interaction Quality and Gender Schemas

Row	Reference Group/Time	Comparison Group/Time	Mean Difference	Standard Error	Significance
Social Interaction Quality – Time					
Pretest	Posttest	-12.93	0.55	.001	
	Follow-up	-15.16	0.51	.001	
Posttest	Follow-up	-2.22	0.37	.001	
Social Interaction Quality – Group Comparison					
Control Group	Positive Youth Development Group	-11.16	2.03	.001	
	Parenting-Based Identity Formation Group	-21.73	2.03	.001	
Positive Youth Development Group	Parenting-Based Identity Formation Group	-10.58	2.03	.001	
Feminine Gender Schema – Time					
Pretest	Posttest	-10.09	0.85	.001	
	Follow-up	-13.33	0.84	.001	
Posttest	Follow-up	-3.24	0.26	.001	
Feminine Gender Schema – Group Comparison					
Control Group	Positive Youth Development Group	-4.18	2.13	.17	
	Parenting-Based Identity Formation Group	-12.98	2.13	.001	
Positive Youth Development Group	Parenting-Based Identity Formation Group	-8.80	2.13	.001	
Masculine Gender Schema – Time					
Pretest	Posttest	8.44	0.72	.001	
	Follow-up	11.87	0.92	.001	
Posttest	Follow-up	3.42	0.36	.001	
Masculine Gender Schema – Group Comparison					
Control Group	Positive Youth Development Group	3.64	4.76	1.00	
	Parenting-Based Identity Formation Group	16.33	4.76	.004	
Positive Youth Development Group	Parenting-Based Identity Formation Group	12.69	4.76	.03	

As shown in Table 4, for the variable social interaction quality, there were significant differences between the pretest and posttest, pretest and follow-up, and posttest and follow-up stages *($p < .01$)*. Additionally, in the between-group comparisons, there were significant differences between the *positive youth development* and *parenting-based identity formation* groups compared to the *control group ($p < .01$)*, as well as between the *positive youth development* and *parenting-based identity formation* groups *($p < .01$)*.

As indicated in Table 4, for the variable gender schemas (feminine and masculine), there were significant differences between the pretest and posttest, pretest and follow-up, and posttest and follow-up stages *($p < .01$)*. Moreover, in the between-group comparisons, significant differences in *gender schemas* (feminine and masculine) were observed only between the *parenting-based identity formation* group and both the *positive youth development* and *control* groups *($p < .01$)*, whereas there was no significant difference between the *positive youth development* and *control* groups *($p > .01$)*.

Overall, in the variable social interaction quality, both training approaches were effective, but *parenting-based identity formation training* demonstrated a higher level of effectiveness. In contrast, for gender schemas (feminine and masculine), only the *parenting-based identity formation training* group showed a statistically significant effect.

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4. Discussion and Conclusion

The results of this study revealed that both the *parenting-based identity formation* training and the *positive youth development* (PYD) training had significant effects on improving the quality of social interaction and modifying gender schemas in adolescent girls. Specifically, the parenting-based identity formation intervention demonstrated superior effectiveness in both outcomes compared to the PYD approach. The findings showed that adolescents who participated in the parenting-based identity formation training reported significantly higher levels of positive social interaction, emotional regulation, and balanced gender schemas than those in the control group. This outcome highlights the integral role of family-centered identity interventions in shaping adolescents' psychosocial adjustment. The results align with developmental theories emphasizing the reciprocal interaction between parental guidance and identity formation processes (Karimi-Moghadam et al., 2023; Lerner, 2021). Adolescents construct a sense of self not in isolation but through meaningful engagement with their parents and social environment, and this relational dynamic can determine their ability to navigate complex social and emotional domains (Hu & Cheung, 2024).

The observed improvement in social interaction quality following both interventions suggests that fostering interpersonal skills, empathy, and communication competence can substantially strengthen adolescents' social functioning. The PYD approach, which emphasizes the Five Cs—Competence, Confidence, Connection, Character, and Caring—directly targets these developmental assets (Johnson & Ettekal, 2023; Martin-Barrado & Gomez-Baya, 2024). Adolescents who undergo such training learn to regulate their emotions, express themselves assertively, and establish healthy relationships with peers and adults. The current findings resonate with the results of Hosseinabad et al. (2020), who demonstrated that PYD-based interventions enhance adolescents' psychological well-being and reduce behavioral problems (Hosseinabad et al., 2020). Similarly, Milot Travers and Mahalik (2021) found that PYD programs serve as protective factors against depression and risk behaviors by improving social belonging and moral awareness (Milot Travers & Mahalik, 2021). The gains in social interaction observed in this study can thus be interpreted as outcomes of strengthened social competence, empathy, and communication self-efficacy.

Furthermore, the more pronounced effectiveness of the parenting-based identity formation training may be attributed to the direct engagement of familial and cognitive schema processes. This approach helps adolescents reframe their self-concept through parental modeling and reflective exercises, allowing them to internalize coherent values and relational expectations (Karimi-Moghadam et al., 2023). The findings align with Lerner's person–context coaction model, which views development as the dynamic interplay between individual agency and contextual influences such as parenting style and family communication (Lerner, 2021). Consistent with Crocetti's model of identity commitment and exploration, the structured discussions and reflective tasks in the identity formation sessions likely facilitated adolescents' transition from identity diffusion toward identity achievement (Crocetti, 2017). The integration of parenting elements into identity training supports the establishment of adaptive cognitive schemas that regulate emotional responses and social judgments, thereby explaining the significant increase in social interaction quality found in this group.

Another notable finding was the modification of gender schemas, particularly among participants in the parenting-based identity formation group. Adolescents often internalize rigid gender beliefs through socialization processes influenced by family, culture, and media (Ghobadi & Heydari, 2020; Ullrich et al., 2022). The current intervention, by addressing these cognitive structures through self-reflection and parent–child discussions, appears to have fostered more flexible and egalitarian gender role perceptions. This result is consistent with the findings of Landry et al. (2020), who demonstrated that gender-equitable attitudes during adolescence are shaped by family discourse, parental modeling, and exposure to diverse gender roles (Landry et al., 2020). In addition, Ullrich et al. (2022) reported that adolescents' cognitive maturity and parental communication quality predict the evolution of gender role attitudes, supporting the present study's emphasis on schema restructuring through parental involvement (Ullrich et al., 2022). Flexible gender schemas allow adolescents to develop empathy and cooperation skills while reducing interpersonal conflict—factors that also contributed to higher social interaction scores observed in the follow-up phase.

The enhanced social interaction quality observed among adolescents in both intervention groups supports previous evidence linking social competence training and moral education to interpersonal well-being (Alizadeh et al., 2020;

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Asgarpour & Chahrazad, 2023). Adolescents trained in emotional awareness, moral reasoning, and empathy display improved social adjustment and conflict resolution capabilities. The results echo findings by Chater et al. (2022), who highlighted that social interaction involves shared intentionality and cooperative reasoning that can be strengthened through structured group activities (Chater et al., 2022). Similarly, Morelli et al. (2023) found that self-regulated learning and supportive friendships promote motivation and persistence, essential components of sustained social competence (Morelli et al., 2023). The structure of both interventions in this study—emphasizing group participation, reflective dialogue, and moral discussions—likely enhanced adolescents' prosocial orientation and empathy, contributing to their improved social interactions and relationship satisfaction.

The results further support previous studies that have demonstrated the link between identity coherence and social integration (Hu & Cheung, 2024; Zhang & Qin, 2023). When adolescents achieve greater identity clarity, they exhibit higher levels of emotional stability, confidence, and cooperation in social contexts. Hu and Cheung (2024) emphasized that social identity and integration are mutually reinforcing, as individuals who perceive themselves as part of cohesive social groups tend to report higher psychological well-being (Hu & Cheung, 2024). In the present study, adolescents who received identity-based training demonstrated enhanced relational competence, possibly because identity coherence fosters social authenticity and emotional attunement. The integration of self-awareness and moral reasoning, as encouraged in the interventions, provides adolescents with the cognitive tools necessary for perspective-taking and effective communication (Chao, 2022).

The results can also be interpreted in light of the cognitive–neural model of identity development proposed by Pfeifer and Berkman (2018), which links identity formation to the neural systems involved in motivation and self-referential cognition (Pfeifer & Berkman, 2018). Interventions that emphasize self-reflection, goal setting, and emotional regulation—key components of both programs—may enhance adolescents' neural integration between cognitive control and emotional regulation areas, leading to more coherent and adaptive identity outcomes. This aligns with Christiaens et al. (2021), who found that identity consolidation during the transition to adulthood is facilitated by sustained exploration and reflective engagement (Christiaens et al., 2021). The significant gains observed in this study, therefore, reflect the synergistic effects of psychological, cognitive, and relational mechanisms underpinning identity formation.

The incorporation of spirituality, moral intelligence, and empathy training within the interventions further contributed to participants' psychosocial development. As noted by Asgarpour and Chahrazad (2023), moral intelligence programs enhance adolescents' self-awareness, ethical reasoning, and emotional balance (Asgarpour & Chahrazad, 2023). These capacities are essential for fostering a moral identity and reinforcing prosocial behavior. Similarly, Hosseinabad et al. (2019) found that the positive adolescent transformation model—closely aligned with PYD principles—improves psychological well-being, optimism, and emotional resilience (Hosseinabad et al., 2019). The results of this study support the assertion that integrating moral and emotional dimensions into identity education yields broader social and cognitive benefits.

Moreover, the improvement in social interaction quality can be contextualized through the lens of social connectedness and media influence. Studies have shown that meaningful social connections predict academic engagement and life satisfaction among adolescents (Riewestahl et al., 2023; Zhu et al., 2025). In contemporary digital environments, identity formation and social interaction are increasingly intertwined with online communication and peer validation (Soh et al., 2024). Adolescents' capacity to navigate these virtual interactions critically depends on their level of self-awareness and emotional regulation, both of which were strengthened through the interventions. Soh et al. (2024) argue that digital contexts challenge the coherence of identity by promoting multiple self-presentations, but training in reflective and moral skills can mitigate these effects (Soh et al., 2024). Thus, the observed post-intervention improvements may reflect adolescents' enhanced ability to manage social interactions both offline and online, contributing to overall social adaptability.

Cross-cultural interpretations also illuminate the study's findings. Adolescents' identity and gender schema development are influenced by cultural expectations and socialization patterns (Hjerm et al., 2018; Horn, 2019). Collectivist societies emphasize communal harmony and relational obligations, which may explain why parenting-based training—anchored in family relationships—produced particularly strong effects. This aligns with Ghobadi and Heydari's (2020) work on the construction of gender identities within cultural narratives, which emphasizes that social learning within family systems

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shapes adolescents' cognitive and moral schemas (Ghobadi & Heydari, 2020). Furthermore, Riewestahl et al. (2023) highlight that outreach programs targeting adolescents' moral and emotional development can foster prosocial engagement and community participation (Riewestahl et al., 2023). The current study's findings confirm that structured educational and family-based programs can yield comparable effects even in non-Western cultural contexts, thereby supporting the universality of identity and social competence development principles.

In summary, the results demonstrate that the integration of parenting-based identity formation and positive youth development frameworks can substantially enhance adolescents' social interaction quality and reshape gender schemas toward more flexible and adaptive orientations. The findings are consistent with the literature emphasizing the multidimensional nature of adolescent development—where cognitive, emotional, social, and cultural factors interact to form a coherent sense of self (Lerner, 2021; Zhang & Qin, 2023). By engaging adolescents in reflective and experiential learning, while also involving family dynamics, these programs foster sustainable developmental outcomes that extend beyond the intervention period.

5. Limitations & Suggestions

This study, despite its strong design, had several limitations that should be acknowledged. First, the relatively small sample size limits the generalizability of the findings to broader adolescent populations with diverse socioeconomic and cultural backgrounds. Second, the study relied primarily on self-report questionnaires, which may have been influenced by social desirability bias or subjective self-perception. Third, the sample consisted exclusively of female adolescents, which restricts the ability to compare gender-specific responses to the interventions. Fourth, the follow-up period of two months was relatively short for assessing the long-term stability of the training effects. Finally, contextual variables such as family communication quality, peer influence, and exposure to media were not directly controlled, which could have affected participants' identity and social development outcomes.

Future studies should employ larger and more diverse samples, including both male and female adolescents across different cultural and socioeconomic contexts, to increase the external validity of the findings. Longitudinal research designs are recommended to examine the sustained impact of these interventions on identity stability and social adjustment over time. Additionally, mixed-method approaches that incorporate qualitative interviews or behavioral observations could provide deeper insight into the mechanisms underlying the observed changes. Future research might also explore the digital dimension of identity formation by examining how parenting-based and PYD programs can be adapted for online educational platforms. Finally, comparative studies that integrate neurocognitive assessments or psychophysiological indicators could shed light on the biological correlates of identity and social interaction changes following psychosocial interventions.

From a practical standpoint, schools and counseling centers should consider incorporating both parenting-based identity formation and PYD-based programs into their adolescent education curricula. Collaboration between educators, psychologists, and parents is essential to ensure that identity-related discussions continue across home and school environments. Practitioners are encouraged to use experiential, reflective, and family-inclusive methods to enhance adolescents' emotional regulation, empathy, and moral reasoning. Policymakers should also prioritize the integration of developmental training programs within educational systems to strengthen adolescents' resilience, social responsibility, and adaptive identity formation, ultimately promoting healthier interpersonal and societal relationships.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. This study is part of a doctoral dissertation in Educational Psychology and has been approved by the Research Ethics Committee of the University with the ethics code IR.IAU.KHUISF.REC.1402.034.

Transparency of Data

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In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contributed to this article.

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