

Factors Influencing Psychological Independence in Adolescents and Their Relationship to Coaching-based Support from Significant Others

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ABSTRACT

Background An increasing number of adolescents are experiencing social maladjustment. This development may be due to serious conflicts regarding psychological independence. This study aimed to elucidate factors that influence psychological independence in adolescents and to clarify the relationship among coaching-based support from significant others, adolescent self-esteem, and adolescent psychological independence, in order to help prevent and treat social maladjustment in adolescents.

Methods A total of 1814 students in all years at 2 universities and 1 junior college in A Prefecture, Japan, completed an anonymous self-administered questionnaire. The questionnaire asked about the participants' attributes, support relationships, psychological independence, and self-esteem. Coaching-based support was assessed by the Accelerate your Coaching Effectiveness scale; psychological independence by the Psychological Jiritsu Scale; and self-esteem by the Rosenberg Self-Esteem Scale.

Results Gender, grade, major, current living situation were found to influence psychological independence of adolescents. The most significant others who had the most influence on psychological independence were mothers, fathers, and friends for male adolescents, and mothers, friends, and fathers for female adolescents, in that order. In female, coaching-based support from significant others increased their self-esteem and promoted all the sub-scales of psychological independence. In male, coaching-based support boosted their self-esteem and promoted the following sub-scales; “future orientation”, “appropriate human relations”, “value judgment and execution”, “responsibility”, and “social perspective”, except for “self-control”.

Conclusion We believe that coaching-based support from significant others can effectively help adolescents build their self-esteem and can promote their psychological independence.

Key words adolescents; adolescent psychology; mentoring; psychological support systems; self-esteem

In 1973, Erikson¹ wrote that psychosocial development in adolescents includes developing an identity, which means deciding what they are going to do and giving up or discarding preconceptions. Adolescents seek to establish themselves in society and to have a sense of self-efficacy. At the same time, they experience a variety of roles and developmental tasks and develop an understanding of their own characteristics. The psychological characteristics of adolescents have also been identified as a conflict between dependence and independence.²

Psychological independence is one of the developmental challenges for adolescents. According to Kosaka and Toda, in adolescents psychological independence consists of 4 aspects: behavior, values, and emotions and their underlying cognition.³ Fukuda reported that serious conflicts related to psychological independence cause social maladjustment.⁴ Many young people do not want to grow up because they feel self-conscious about asserting their independence.⁵ The number of socially maladjusted adolescents is currently on the rise, and an inability to achieve psychological independence has been proposed as an explanation for this increase. coaching-based support from significant others, i.e., important persons who influenced psychological independence, rather than friends and parents, plays an important role in adolescents becoming independent, although the types of relationships and involvement that have a facilitative impact on psychological independence remains unclear; Yamada has suggested that more empirical research is needed.⁶

Coaching is a communication technique that encourages spontaneous behavior in others.⁷ Spontaneous behavior refers to thinking, judging, deciding, and acting, i.e., to voluntary, self-initiated actions. Because such actions involve responsibility, we believe that promoting them will help to increase psychological independence. Proving that informal coaching in the form

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Received 2020 November 13

Accepted 2020 December 15

Online published 2021 January 15

Abbreviations: ANOVA, analysis of variance; Ayce, Accelerate your Coaching Effectiveness; PJS-2, Psychological Jiritsu Scale

of support from significant others, referred to here as “coaching-based support,” increases adolescents’ self-esteem and promotes psychological independence will provide scientific evidence to support the usefulness of actively communicating coaching methods to medical professionals and childcare supporters. Furthermore, we believe that involving medical professionals and childcare supporters in coaching and supporting children and adolescents will promote their psychological independence and help prevent and treat social maladjustment. We hope that such knowledge will help to solve the problems of social withdrawal in adolescents and domestic violence against them, which are issues that are of great interest to the medical community and society in general. Therefore, this study examined the effects of coaching-based support from significant others on adolescents’ psychological independence and aimed to clarify the factors that influence psychological independence. In addition, it aimed to elucidate the relationship between coaching-based support from significant others and the method of interaction.

SUBJECTS AND METHODS

Subjects

We included a total of 1814 students of all years at 2 universities and 1 junior college in A Prefecture, Japan.

Measurements

Participants completed a proprietary, unmarked self-administered questionnaire that assessed attributes (gender, grade, major, current living situation, birth order), coaching-based support from significant others, psychological independence, and self-esteem.

Coaching-based support from significant others

We assessed coaching-based support with the Accelerate your Coaching Effectiveness (Ayce) question list with the approval of the Coaching Research Institute⁸ (the responsibility for this study rests with the researcher and in no case does it extend to the Coaching Research Institute). The Ayce list is considered to reveal the characteristics of coaching skills and effectiveness and is used by coaches around the world. In the current study, we used 10 of the 24 Ayce questions to rate the coaching-based support provided by significant others. According to the Institute’s categorization of the Ayce questions, the 10 questions we used were assigned to the following categories: respect for initiative, 4 questions; change in perspective, 3 questions; and specific goals and actions, 3 questions. Respect for initiative is an engagement in which the other person can talk about anything without hesitation and leave

the decision-making to the other person, without giving instructions or advice. A change in perspective is an engagement that does not impose one’s own ideas, but openly communicates what one notices and feels to the other person, expanding new insights and perspectives. Clarification of goal and actions is to give the other person the opportunity to set specific goals, and also an engagement in clarifying the purpose at the beginning of the conversation and clarifying the action until next time. The rating was based on a 7-point scale ranging from 1 (not at all applicable) to 7 (very applicable). The higher the score, the higher the adolescent’s opinion of the impact of the coaching-based support.

We calculated the alpha coefficients for each subscale of Ayce and confirmed internal consistency for each of the subscales: accountability, 0.754; change in perspective, 0.752; and specific goals and actions, 0.857. To analyze results, we calculated the mean score of each subscale question and the mean score of each subscale.

Psychological independence

Psychological independence was assessed with the 30 items of the Psychological Jiritsu Scale (PJS-2). The scale was developed by Kosaka and Toda,⁹ who agreed to its use in this study. The reliability and validity of the scale have been proven.⁹ The 30 items are assigned to 6 factors, as follows: future orientation, 6 items; appropriate human relations, 5 items; value judgment/execution, 5 items; responsibility, 5 items; social perspective, 4 items; and self-control, 5 items. Future Orientation means understanding current state and being able to think and strive for the future. Appropriate human relations means to be able to emphasize and relate appropriately to others. Value judgment/execution means to be able to make decisions and take actions based on one’s own values. Responsibility means taking responsibility for one’s actions. Social perspective means being able to understand social knowledge and one’s role in society. Self-control means being able to control one’s emotions and see oneself and external events objectively. Each item is scored on a 7-point scale ranging from 1 (not at all applicable) to 7 (very applicable). The higher the score, the higher the level of psychological independence.

Based on the data from Kosaka and Toda,¹⁰ the alpha coefficients were calculated for each subscale. The results showed that all subscales had sufficient internal consistency: future orientation, 0.944; appropriate human relations, 0.903; value judgment/execution, 0.886; responsibility, 0.840; social perspective, 0.636; and self-control, 0.793. We calculated the mean score of each subscale item and the mean subscale score.

Self-esteem

The study used the 10-item Self-Esteem Scale developed by Rosenberg,¹¹ which is now available in Japanese.¹² Each item was scored on a 4-point scale ranging from 1 (not at all applicable) to 4 (very applicable); the higher the score, the higher the self-esteem. The alpha coefficients of the 10 self-esteem items were calculated, and the internal consistency was found to be adequate (0.802). We calculated the total score by summing the score of the 10 items.

Statistical analysis

For testing the factors affecting psychological independence, multiple regression analysis was conducted with overall psychological independence and each of the subscales as the dependent variable and the basic attributes as the independent variables. One-way analysis of variance (ANOVA) was used for the test of means, and Tukey's test was used for multiple comparison tests, and Pearson's test for Pearson's productive correlation coefficient was used to analyze the association between scales. Statistical analysis was performed with IBM SPSS Statistics 24 for Windows, and the significance level was set at 5%. Results are presented as mean \pm SD.

Ethical considerations

In the letter requesting their voluntary participation, subjects were informed about the purpose and methods of the study, and it was explained that no benefits or disadvantages were associated with their decision whether or not to cooperate, that the survey would be completed anonymously, that the data would statistically analyzed for the whole group so that individuals could not be identified, that the results of the research would be published in relevant conferences, papers, etc., and that data would be handled securely. Consent to participate in the study was assumed through the voluntary submission of the questionnaire in the collection box. The study was approved by the Research Ethics Review Committee of the University of Shimane, Izumo Campus (Approval No. 242).

RESULTS

The survey was distributed to 1814 college students in one to four years in A Prefecture. All students were under the age of 24 and therefore adolescents according to the definition of the Ministry of Health, Labour and Welfare. A total of 1286 students (70.9% response rate) responded to the survey. Of these students, 1114 (61.4% valid response rate) responded to all survey items on coaching-based support, psychological independence, and self-esteem.

Subject characteristics

The students ranged in age from 18 to 24 years (mean age, 19.2 ± 1.12 years). The other subject characteristics are shown in Table 1. Of the 1114 participants, more than half were female ($n = 761$, 68.3%), and 864 (77.6%) were in their first and second years. A total of 797 (71.5%) students were majoring in policy studies, nursing, or cultural studies. Half of the respondents ($n = 573$, 51.4%) were currently living alone. Regarding birth order, 484 (43.4%) were the eldest child and 370 (33.2%) were the youngest.

Most significant others who influenced psychological independence

The people who have been directly involved and who have had the greatest impact on psychological independence are shown in Table 2. In male, the most significant others were mothers, followed by fathers and then friends; and in females, they were mothers, followed by friends and then fathers.

Differences in psychological independence and basic characteristics

The differences in overall psychological independence and each subscale score between grades are shown in Table 3. We found significant differences between grades for future orientation, with first year students tending to score higher than second year ones ($P < 0.01$) and fourth year students tending to score higher than second year ones ($P < 0.05$) and third year ones ($P < 0.01$).

The differences between majors in overall psychological independence and differences in scores on each subscale are shown in Table 4. We found significant differences between majors in overall psychological independence, future orientation, appropriate human relations, and responsibility. Scores for overall psychological independence were higher for nursing majors than for cultural and policy studies majors ($P < 0.01$). Scores for future orientation were higher for nursing and childcare majors than for policy studies, cultural studies, and other majors ($P < 0.01$) and were higher for nutrition majors than for policy studies and other majors ($P < 0.05$). Scores for appropriate human relations were higher for cultural studies and nursing majors than for economics majors ($P < 0.01$) and higher for nursing and childcare majors than for policy studies and economics majors ($P < 0.05$). Scores for responsibility were higher for nursing majors than for policy studies majors ($P < 0.05$). Scores for social perspective were significantly different in 1-way analysis of variance but not in multiple comparisons.

The results of the comparison of the mean overall

Table 1. Sociodemographics of the participants (N = 1114)

Variables		<i>n</i>	%
Gender	Male	353	31.7
	Female	761	68.3
Grade in college or university	First year	499	44.8
	Second year	365	32.8
	Third year	175	15.7
	Fourth year	75	6.7
Major	Policy studies	280	25.1
	Nursing	267	24.0
	Cultural studies	250	22.4
	Childcare	97	8.7
	Nutrition	52	4.7
	Economics	15	1.3
	Jurisprudence	13	1.2
	Pedagogy	10	0.9
	Social work studies	2	0.2
	Agriculture	0	0.0
	Medical science	0	0.0
	Other	100	9.0
	Duplicate response/No answer	28	2.5
Current living situation	Living alone	573	51.4
	Living in a dormitory	203	18.3
	Living with parents	304	27.2
	Living with a sibling or friend	20	1.8
	Living with others	14	1.3
Birth order	Only child	102	9.2
	Eldest child	484	43.4
	Youngest child	370	33.2
	Middle child	158	14.2

psychological independence scores and the scores of each subscale by current living situation and birth order are shown in Table 5. We found a significant difference in social perspective between current living situation and birth order. In terms of living situation, students who lived alone had higher scores for social perspective than students who lived with their parents ($P < 0.05$). In terms of birth order, students who were an only child had higher scores for social perspective than students who were the eldest child ($P < 0.05$).

The impact of basic attributes on psychological independence

The standardized coefficients (β) of the test results are shown in Table 6. VIFs ranged from 1.006 to 1.067, with

no problems with multicollinearity.

Factors affecting overall psychological independence were current living situation ($\beta = -0.086$, $P < 0.01$), Gender ($\beta = 0.070$, $P < 0.05$), and major ($\beta = 0.069$, $P < 0.05$). Factors influencing future orientation were major ($\beta = 0.127$, $P < 0.01$), Gender ($\beta = 0.113$, $P < 0.01$), factors influencing appropriate human relations were Gender ($\beta = 0.112$, $P < 0.01$), factors influencing value judgment Gender were current living situation ($\beta = -0.100$, $P < 0.01$), factors influencing responsibility were Gender ($\beta = 0.093$, $P < 0.01$) and current living situation ($\beta = -0.082$, $P < 0.01$), and factors affecting social perspective were Gender ($\beta = -0.097$, $P < 0.01$), current living situation ($\beta = -0.085$, $P < 0.01$) and grade ($\beta = -0.065$, $P < 0.05$). There were no factors affecting

Table 2. The most significant others who influenced psychological independence (multiple responses possible)

	Whole group* (N = 1107)		Male† (N = 353)		Female† (N = 754)	
	n	%	n	%	n	%
Mother	547	49.6	123	35.1	424	56.3
Father	143	13.0	71	20.3	72	9.6
Friends	126	11.4	42	12.0	84	11.2
High school homeroom teacher	58	5.3	26	7.4	32	4.2
High school club teacher	51	4.6	19	5.4	32	4.2
Siblings	36	3.3	9	25.7	27	3.6
Junior high school club teacher	32	2.9	12	3.4	20	2.7
Junior high school homeroom teacher	19	1.7	6	1.7	13	1.7
Senior student	18	1.6	7	2.0	11	1.5
Grandmother	16	1.5	6	17.1	10	1.3
Person at same after-school job	15	1.4	5	1.4	10	1.3
Grandfather	14	1.3	9	25.7	5	6.6
Elementary school homeroom teacher	11	1.0	8	22.9	3	0.4
University or college teacher	6	0.5	0	0.0	6	0.8
Aunts or uncles	5	0.5	2	5.7	3	0.4
Other	26	2.4	13	3.7	13	1.7

*7 participants did not provide responses and were excluded from the analysis. †Five male and 11 female participants responded in more than one way. Those data are also included.

Table 3. Comparison of overall psychological independence and each subscale score by grade (N = 1114)

Grade in university	Overall psychological independence	Psychological independence items					
		Future orientation	Appropriate human relations	Value judgment/execution	Responsibility	Social perspective	Self-control
First year (n = 499)	24.52 (3.81)	4.86 (1.31)	5.49 (0.92)	5.17 (1.05)	4.92 (1.01)	4.35 (0.91)	4.54 (0.96)
Second year (n = 365)	23.99 (3.28)	4.59 (1.35)	5.53 (0.77)	5.03 (1.01)	4.78 (0.94)	4.20 (0.93)	4.57 (0.98)
Third year (n = 175)	23.95 (3.74)	4.71 (1.29)	5.48 (0.95)	4.95 (1.10)	4.75 (0.97)	4.28 (0.95)	4.48 (1.03)
Fourth year (n = 75)	24.80(3.74)	5.20 (1.20)	5.57 (0.88)	5.18 (0.95)	4.99 (0.99)	4.15 (1.00)	4.46 (0.97)
F value (one-way ANOVA)	2.544	**5.890	0.261	2.496	2.520	2.294	0.503
Multiple comparison (Tukey's test)		**First > second *Fourth > second **Fourth > third					

Values indicate mean (SD). * $P < 0.05$, ** $P < 0.01$. ANOVA, analysis of variance.

self-control.

Table 6 shows that overall psychological independence, future orientation, appropriate human relations, and responsibility were significantly higher for female than for male. On the other hand, social perspective was

significantly higher for male than for female.

Relationship between self-esteem, other aspects of coaching-based support from significant others, and items of psychological independence

Table 4. Comparison of overall psychological independence and each subscale score by major ($N = 1086^\dagger$)

Major	Overall psychological independence	Psychological independence items					
		Future orientation	Appropriate human relations	Value judgment/execution	Responsibility	Social perspective	Self-control
Policy studies ($n = 280$)	23.82 (3.95)	4.48 (1.45)	5.43 (0.98)	5.05 (1.09)	4.74 (1.03)	4.34 (0.96)	4.51 (1.03)
Nursing ($n = 267$)	25.22 (3.41)	5.26 (1.08)	5.68 (0.80)	5.23 (1.06)	5.02 (0.91)	4.32 (0.93)	4.58 (0.93)
Cultural studies ($n = 250$)	23.86 (3.67)	4.54 (1.34)	5.49 (0.82)	5.02 (1.00)	4.80 (1.01)	4.16 (0.92)	4.54 (0.98)
Childcare ($n = 97$)	24.33 (3.07)	5.18 (1.05)	5.53 (0.70)	4.92 (1.04)	4.79 (0.93)	4.05 (0.85)	4.51 (0.93)
Nutrition ($n = 52$)	24.33 (2.99)	5.10 (1.06)	5.50 (0.82)	5.05 (0.93)	4.89 (0.75)	3.99 (0.94)	4.43 (1.02)
Economics ($n = 15$)	23.48 (5.00)	4.36 (1.40)	4.76 (1.25)	5.28 (1.47)	4.53 (1.57)	4.78 (0.98)	4.55 (0.82)
Jurisprudence ($n = 13$)	24.73 (4.10)	4.71 (1.33)	5.55 (1.02)	5.32 (1.04)	5.05 (0.74)	4.60 (1.06)	4.43 (1.24)
Pedagogy ($n = 10$)	25.87 (1.99)	5.48 (0.72)	5.82 (0.54)	5.34 (0.83)	5.26 (0.76)	4.25 (0.75)	4.64 (0.79)
Social work studies ($n = 2$)	21.08 (3.89)	4.92 (0.82)	4.80 (1.13)	3.70 (0.71)	4.10 (0.71)	4.25 (1.06)	3.40 (0.28)
Other ($n = 100$)	23.96 (3.43)	4.37 (1.35)	5.42 (0.89)	0.94 (0.09)	0.98 (0.10)	4.44 (0.83)	4.56 (1.01)
<i>F</i> value (one-way ANOVA)	**3.506	**9.925	**3.081	1.581	*1.987	**2.849	0.477
Multiple comparison (Tukey's test)	**Nur > Cul and Pol	**Nur and Chi > Pol, Cul and Oth *Nut > Pol and Oth	**Cul > Eco **Nur > Eco *Nur > Pol *Chi > Eco		*Nur > Pol	n.s.	

Values indicate mean (SD). * $P < 0.05$, ** $P < 0.01$. †28 participants did not provide responses and were excluded from the analysis. ANOVA, analysis of variance; Chi, childcare; Cul, cultural studies; Eco, economics; Nur, nursing; Nut, nutrition; Oth, other; Pol, policy studies; n.s., not significant.

We calculated Pearson's productive correlation coefficients to examine the relationship between the students' opinion of coaching-based support from significant others, self-esteem, and psychological independence. We analyzed the results separately for male (Table 7) and female (Table 8) adolescents because we found Gender differences in the results of psychological independence.

In male participants, we found a positive correlation between self-esteem and the following aspects of coaching-based support from significant others: change in perspective ($r = 0.214$, $P < 0.01$), respect for initiative ($r = 0.125$, $P < 0.05$), and clarification of goals and actions ($r = 0.131$, $P < 0.05$). In female participants, we found a positive correlation between self-esteem and all other aspects of coaching-based support from significant others ($P < 0.01$).

In male, all aspects of coaching-based support by significant others correlated positively with future orientation, appropriate human relations, value judgment/execution, responsibility, and social perspective ($P < 0.01$). The self-control subscale of psychological independence correlated positively with the change of perspective subscale of coaching-based support from significant others ($r = 0.118$, $P < 0.05$) and self-esteem ($r = 0.351$, $P < 0.01$) but not with respect for initiative or clarification of goals and actions. In female, all aspects of coaching-based support from significant others correlated positively with all measures of psychological independence ($P < 0.01$).

Table 5. Comparison of overall psychological independence and each subscale score by living and siblings (N = 1114)

Current living situation	Overall psychological independence	Psychological independence items					
		Future orientation	Appropriate human relations	Value judgment/execution	Responsibility	Social perspective	Self-control
Living alone (n = 573)	24.48 (3.62)	4.77 (1.34)	5.54 (0.89)	5.16 (1.01)	4.90 (0.99)	4.35 (0.95)	4.58 (1.02)
Dormitory life (n = 203)	24.30 (3.25)	4.78 (1.22)	5.45 (0.86)	5.13 (1.02)	4.93 (0.91)	4.32 (0.85)	4.46 (0.90)
Living with parents (n = 304)	24.02 (3.88)	4.79 (1.35)	5.50 (0.87)	4.97 (1.10)	4.74 (1.02)	4.14 (0.92)	4.56 (0.91)
Living with a sibling or friend (n = 20)	22.26 (3.37)	4.09 (1.09)	5.27 (0.80)	4.55 (1.11)	4.71 (0.79)	3.98 (0.69)	4.09 (1.06)
Living with others (n = 14)	23.83 (3.84)	5.19 (1.41)	5.34 (0.78)	4.84 (1.06)	4.84 (0.96)	4.00 (1.04)	4.14 (1.23)
F value (one-way ANOVA)	*2.44	1.71	0.93	**3.38	1.72	**3.58	2.23
Multiple comparison (Tukey's test)	n.s.			n.s.		*Living alone > Living with parents	
Birth order							
Only child (n = 102)	24.36 (3.61)	4.83 (1.30)	5.31 (1.01)	5.10 (1.01)	4.97 (0.95)	4.51 (0.90)	4.44 (0.99)
Eldest child (n = 484)	24.25 (3.70)	4.76 (1.35)	5.52 (0.87)	5.10 (1.04)	4.85 (1.03)	4.23 (0.92)	4.54 (0.97)
Youngest child (n = 370)	24.38 (3.42)	4.84 (1.24)	5.55 (0.82)	5.10 (1.07)	4.85 (0.93)	4.28 (0.92)	4.53 (0.98)
Middle child (n = 158)	24.05 (3.96)	4.61 (1.40)	5.49 (0.91)	5.01 (1.02)	4.82 (0.98)	4.26 (0.98)	4.59 (0.97)
F-value (one-way ANOVA)	0.33	1.21	2.09	0.32	0.60	*2.62	0.52
Multiple comparison (Tukey's test)						*Only child > eldest child	

Values indicate mean (SD). * $P < 0.05$, ** $P < 0.01$. ANOVA, analysis of variance; n.s., not significant.

Table 6. Influencing factors on psychological independence (N = 1086†)

Psychological independence items	Gender‡	Grade	Major	Current living situation	Birth order
Overall psychological independence	0.070*	-0.043	0.069*	-0.086**	-0.019
Future orientation	0.113**	-0.014	0.127**	-0.016	-0.036
Appropriate human relations	0.112**	0.003	0.021	-0.060	0.026
Value judgment/execution	0.003	-0.049	0.013	-0.100**	-0.020
Responsibility	0.093**	-0.045	0.051	-0.082**	-0.033
Social perspective	-0.097**	-0.065*	0.025	-0.085**	-0.031
Self-control	0.009	-0.024	0.000	-0.050	0.029

†28 participants were excluded from the analysis due to missing data. ‡For Gender, 1 was scored as male and 2 as female. * $P < 0.05$, ** $P < 0.01$.

Table 7. Relationship between self-esteem, other aspects of coaching-based support from significant others, and psychological independence items in male (N = 353)

Aspects of coaching-based support	Self-esteem	Psychological independence items					
		Future orientation	Appropriate human relations	Value judgment/execution	Responsibility	Social perspective	Self-control
Respect for initiative	0.125*	0.192**	0.308**	0.208**	0.224**	0.149**	0.104
Change in perspective	0.214**	0.292**	0.366**	0.303**	0.271**	0.201**	0.118*
Clarification of goals and actions	0.131*	0.286**	0.324**	0.272**	0.220**	0.143**	0.103
Self-esteem		0.353**	0.392**	0.463**	0.363**	0.263**	0.351**

Pearson's test for Pearson's productive correlation coefficient was used for the association between scales. * $P < 0.05$, ** $P < 0.01$.

Table 8. Relationship between self-esteem, other aspects of coaching-based support from significant others, and psychological independence items in female (N = 761)

Aspects of coaching-based support	Self-esteem	Psychological independence items					
		Future orientation	Appropriate human relations	Value judgment/execution	Responsibility	Social perspective	Self-control
Respect for initiative	0.203**	0.145**	0.307**	0.283**	0.240**	0.130**	0.171**
Change in perspective	0.158**	0.191**	0.353**	0.276**	0.229**	0.181**	0.159**
Clarification of goals and actions	0.114**	0.237**	0.284**	0.266**	0.254**	0.175**	0.171**
Self-esteem		0.361**	0.417**	0.402**	0.348**	0.199**	0.355**

Pearson's test for Pearson's productive correlation coefficient was used for the association between scales. ** $P < 0.01$.

DISCUSSION

In this study, first we clarify how subjects' attributes might affect their psychological independence, and we compare the degrees of influence within the attributes. Then, we examine how coaching-based support from significant others can impact the psychological independence in adolescents, including their self-esteem.

In female adolescents, the most important significant other who had the greatest influence on psychological independence was the mother, followed by friends and the father; and in male it was the mother, followed by the father and friends. In addition, gender, grade, major, and current living situation were found to be influential factors in adolescents' psychological independence.

Gender was the most influential factors in psychological independence under the following categories; "overall psychological independence", "future orientation", "appropriate human relations", "responsibility", and "social perspective."

The female had significantly higher scores than the male on the of overall psychological independence, future orientation, appropriate human relations, responsibility. Males had significantly higher scores than

females for social perspective. Kosaka and Toda examined self-reliance from the perspective of gender role expectations for male and female adolescents and found that although male are more likely to adjust to society, they have fewer opportunities to gain psychological independence and tend to remain at the same level as junior high school students; in contrast, girls see high school as a major turning point in their lives and make a conscious effort to gain psychological independence during their time there.¹³ In the present study, male tended to have higher scores for social perspective; this finding appears to be in line with the results of the Kosaka and Toda study,¹³ which showed that male adapt to society more easily.

Grade was the second most influential factor after gender and current life in the social perspective of psychological independence. However, there were no differences in social perspective between grades.

Major was the most influential factor in the future orientation of psychological independence. Students majoring in nursing, childcare, and nutrition were more future oriented than students of other majors. This may be because these students have clear future intentions

to become professionals from the time they enter the respective program.

Current life was the most influential factor in overall psychological independence and value judgment/execution. It was also the second most influential factor after gender in responsibility and “social perspective. Students living alone had higher scores for social perspective, than students living with their parents. Students living alone are more likely to be aware of social events and the world around them. In a study comparing the psychological independence of students living alone and those who were living at home with their parents, students living alone were more likely to cite independence as one of the good things about not living at home with their parents; however, students who were living alone involuntarily reported lower levels of independence.¹⁴ Although living alone does not automatically promote psychological independence, parents should respect a student’s desire to live alone to promote independence. Omata reported that having one’s own bedroom during adolescence promoted the establishment of independence and suggested that having a room to oneself can promote independence even when living with a parent.¹⁵

The position of the siblings was not an influencing factor on psychological independence. However, the students without siblings had higher scores for social perspective than the eldest son or daughter students. The study revealed that the presence or absence of siblings and birth order affect the development of social skills. Eckstein et al.¹⁶ stated that studies of birth order characteristics showed that the eldest children were more affable and responsible, the middle children were more sociable, and the youngest children were more affectionate and sympathetic, among other characteristics. Yoda et al.¹⁷ described the typical eldest child as being self-controlled, cautious, reserved, and kind. In addition, Yamaguchi et al.¹⁸ reported that, compared with children with siblings, children without siblings had better interpersonal skills, i.e., they were better at talking to children of the same age whom they met for the first time, and had better ability to self-control, i.e., they were less likely to become angry when their friends took the toys they were playing with. However, the present study found no association between the psychological independence measures of appropriate human relations, responsibility, and self-control and the presence or absence of siblings or birth order. In the above-mentioned study, Yamaguchi et al.¹⁸ attributed the higher interpersonal skills of the only child to the fact that an only child is raised in an adult world and is accustomed to adult social settings. In the present

study, the students without siblings had a higher social perspective than those who were the eldest child, which also suggests that being raised in the adult world may have had an impact.

Regarding the relationship between coaching-based support from significant others and self-esteem and psychological independence, for both adolescent males and females, mothers were the most common significant others who had the most influence on the development of psychological independence. Yamada et al.¹⁹ conducted semi-structured interviews with students and found that they were not aware of the influence of parents’ attitudes on the development of psychological independence, but they felt that their psychological independence was largely due to having a close friend or an older student who was available for advice. However, in this study, senior students ranked ninth as significant others in both male and female adolescents. Oda analyzed the literature on psychological independence among adolescents in Japan and found that since the 1990s most research on psychological independence has focused on the parent-child relationship.²⁰ This finding can be attributed to the fact that parents have long been considered to have a significant influence on psychological independence. Studies have reported on the influences of parent-child relationships on children’s and adolescents’ psychological independence. In university students, psychological independence correlated with the level of intimacy with parents, and the mechanism for developing trust in one’s parents was different between male and female students. Concerning the relationship between psychological independence and intimacy in terms of the relationship with parents as perceived by children in late adolescence, it was reported that the combination of the parent-child relationship led to different ways of establishing trust with parents. In terms of the impact of parental relationships on children’s self-esteem, autonomy, and independence, psychological separation from the father enhanced the child’s adjustment and development, whereas daughters’ self-esteem was lower when psychologically separated from their mothers without establishing a trusting relationship with them.²¹

McElhaney and Allen found that the relationship with the mother influences the process of autonomy in adolescents.²² The present study revealed that parental influence on psychological independence is also subjectively felt by the adolescents themselves.

Social support is said to enhance self-esteem in children,²³ so the present study examined the opinion of adolescents on the relationship between coaching-based support from significant others and self-esteem.

We found significant positive correlations between all measures of coaching-based support from significant others and Rosenberg Self-Esteem Scale scores for both male and female adolescents, suggesting that coaching-based support does indeed enhance self-esteem. We searched for previous reports on the relationship between coaching-based support and self-esteem in adolescent students but found little, although we found studies with different targets. Ando and Kumagai²⁴ found that coaching of adults with attention deficit hyperactivity disorder resulted in an increase in Rosenberg Self Esteem Scale scores at 9 and 20 weeks later. In a study in postpartum women, Fujimoto et al.²⁵ reported that the scores of Rosenberg Self Esteem Scale did not differ significantly between 3 days and 1 month after delivery in the uncoached mothers but were significantly higher at 1 month after delivery than at 3 days in the coached mothers. The present study on adolescent students suggests that coaching-based support may be effective in raising self-esteem regardless of the age and circumstances of the target population. Robins et al.²⁶ found that scores on the Self-Esteem Scale declined in teenage years, increased in the 20s, peaked in the 30s and 40s, and then declined in the 50s and 60s. In Japan, they found that Self-Esteem Scale scores tended to be lower in middle and high school students than in college students, whereas adults and older adults tended to have higher scores. In addition, the mean scores of the Self-Esteem Scale in junior and senior high school students, college students, and adults tended to decrease as the year of the study increased.²⁷ The results of the present study suggest that providing coaching-based support may be an effective way to increase the self-esteem of adolescents.

The present study found a positive correlation between the scores on the Self-Esteem scale and all the subscales of psychological independence in both genders. In female adolescents, coaching-based support from a significant other was effective in raising self-esteem and promoting all of the psychological independence subscales. In male adolescents, coaching-based support was also effective in raising self-esteem and promoting the psychological independence items of future orientation, appropriate human relations, value judgment and execution, responsibility, and social perspective; however, it was not effective in promoting self-control.

Self-regulation is the ability to control one's emotions and to maintain mental stability at all times.³ To our knowledge, research on self-control has not been performed in individuals in the target age group of this study (18–24 years old), but it has been reported for

early childhood through 15 years of age.²⁸ In school-age children, girls reported significantly higher levels of self-control than boys, and self-control increased significantly with grade level in girls but not in boys. Also, the levels of self-control tended to be higher in girls than boys from early childhood to school age.²⁹ In the present study, the mean levels of self-control did not differ between the Genders. In a study of children, Nakata stated that recognition of one's own potential is an important determinant of self-control through achievement experiences and that achievement experiences also lead to children setting and achieving their own goals and recognizing their own potential by achieving them.³⁰ However, in the present study, involvement in clarifying goals and behaviors was not linked to promoting self-control in male. Because the significant others in this study were not professionally trained coaches, they may not have engaged in goal/behavior clarification to achieve their goals. We believe that future research needs to examine the involvement of male in promoting self-control, including gender characteristics.

This study has several limitations. First, psychological independence has many different definitions and is perceived differently by different researchers. Russell and Bakken³¹ stated that autonomy has a special meaning during the preteen and teen years because it signifies that an adolescent is a unique, capable, independent person who depends less on their parents and other adults. Thus, many studies outside Japan view autonomy as independence and separation from parents and adults. Kosaka and Toda,⁹ who developed the PJS-2 used in the present study, chose the English term “psychological jiritsu” because in Japan the concept of independence tends to emphasize the relationship with others, including the parents, while the international concepts of autonomy and independence tend to emphasize independence and separation from the parents. Oda²¹ states that psychological independence is likely to be strongly influenced by the image of the adult required by the culture, society, and time period. When comparing their research on psychological independence with that performed in other countries, researchers must advance their findings only after understanding that the way of thinking about psychological independence differs between cultures and social backgrounds. Second, the scale used in this study was designed to evaluate coaching professionals' coaching of their clients and therefore may have limitations when being used to assess the effectiveness of informal coaching-based support from significant others. We need to evaluate coaching-based support with a scale that allows us to ask more specific questions about trust and skills such as listening,

approval, and questioning, which are the foundation of coaching-based support. Future research needs to assess coaching-based support by people who are not professional coaches, to develop measures that can be widely used by the public, and to conduct research with adolescents.

In this study, coaching-based support from significant others increased self-esteem and promoted all subscales of psychological independence in female adolescents. In addition, it increased self-esteem and promoted the subscales of future orientation, appropriate human relations, value judgment and execution, responsibility, and social perspective in male. In conclusion, our findings suggest that coaching-based support from significant others is effective in increasing self-esteem and in promoting the psychological independence of adolescents.

Acknowledgments: We thank the students and teachers who cooperated in this study.

The authors declare no conflict of interest.

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