

Article

Comparison of Self-Differentiation and Identity Statuses in Twins and Nontwins

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Abstract

Formation of identity and differentiation is crucial in the development process of adolescents and young people. Despite many studies on identity status and self-differentiation in adolescence and early adulthood stages, this issue has been less examined among twins. This study was conducted to compare self-differentiation and identity statuses in twins and nontwins. The sample of the study consisted of 128 identical twins, 176 nonidentical twins and 170 nontwins aged from 13 to 30 years and living in Mashhad in Iran, who completed the Objective Measure of Ego Identity Status and Self-Differentiation questionnaires. The results showed that the self-differentiation of identical and nonidentical twins was significantly higher than nontwins. The results also showed that level of Foreclosure identity, Moratorium identity and Achieved identity was similar among identical twins, nonidentical twins and nontwins, but significantly different in terms of Diffusion identity. Further, the results showed that twins younger than 18 years had scores higher than nontwins and twins over 18 years in terms of Diffusion identity. Findings revealed that females were significantly lower than males for Moratorium identity. The adolescence period and co-twins may be the reason for the high levels of Diffusion identity and self-differentiation. Also, it seems that identity development and differentiation are related to emotional and cognitive development.

Keywords: twin; self-differentiation; identity

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The relationship between twins is one of the most intimate interpersonal bonds. The bond between identical twins is closer than nonidentical twins (DiLalla & Mullineaux, 2008). It is thought that during the first few years of life, twins focus only on their primary caregiver. At about 36 months, this attention shifts to another easily accessible social friend, their twin (Mahler et al., 1975). Accordingly, at around the age of 3, twins are increasingly intertwined, beginning to experience partnerships, interactions and trust through play, which together help foster a secure bonding relationship (Tancredy & Fraley, 2006). In the context of interpersonal communication, differentiation of self appears when an individual is able to separate self psychologically and emotionally from others (Ragelienė & Justickis, 2016).

The differentiation of self is described as the ability to counterbalance emotional and intellectual functioning as well as intimacy and autonomy in relationships. The differentiation provides adaptable bounds that allow emotional intimacy and physical union with another without a fear of integration. Individuals with a high level of differentiation maintain a measure of autonomy within their intimate relationships while operating well on both emotional and rational levels (Bowen, 1978).

Differentiation is a crucial feature in twin growth. Two types of differentiation are essential for the healthy growth of twins.

First, others should be able to tell twins apart. Second, twins must be able to differentiate themselves from each other. This concern about the differentiation of twins is also apparent for mothers of twins, who may try to differentiate their twins by naming them according to their birth order or family resemblance (Stewart, 2003). Lamarque et al. (2020), in a qualitative and longitudinal study, investigated the process of self-other differentiation in 3- to 5-year-old twins, reporting that self-other differentiation in twins is challenging.

The second separation and individuality takes place in mid to late adolescence or adult life. It may also reappear in transitional periods later in life. Although twins become separated from their parents, they may still be emotionally interdependent (Adelman & Siemon, 1986). The motivation for separation may be to resist the pleasure of dependency that the twins experience, as greater empathy and the ability to predict each other's behavior can be inherently satisfying. In equal, complementary or competitive twin relationships, they learn to act as a team (Siemon, 1980). During the separation, this consensus may be revisited and challenged. Separation can also be indicative of loss, division and a declining sense of power in being a twin (Adelman & Siemon, 1986). The unsuccessful differentiation may give rise to some problems, and one or both of the twins may continue to retain their twin identity. The twins need to acknowledge the feeling of loss during separation and concern about their future relationships and mutual care. In addition, explicitness about their relationship can lay the ground for the development of intimate relationships with others. As noted in the literature, twins may face particular problems with personality development (Adelman & Siemon, 1986; Siemon, 1980). A

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case study on adult twins has confirmed defects in separation–individuation, object relations and self-esteem (Feigelson, 1983). Individuation can play a key role in shaping identity (Ragelienė & Justickis, 2016). Identity development is a crucial component in the transition from adolescence to adulthood (Adams et al., 2006).

With a sense of identity, a person experiences homogeneity and continuity over time. According to Kroger and Adair (2008), identity enables an individual to proceed in life with a sense of orientation and purpose. During adolescence, the ego reorganizes, merges and transfers childhood identity into a unified structure, which is psychologically necessary for a sense of homogeneity and continuity. It is a structure that grows and exhibits the uniqueness of an individual that distinguishes them from others. Failure to create a perceived positive identity based on personal integrity and continuity over time can lead to incompatibility and compromise the future psychosocial development (Adams et al., 2006). During this phase, individuals face a crisis that is crucial to resolve personal and social conflicts. These conflicts lead to a search for clarity, resolution and personal meaning. During the conflict resolution process, people develop their identity based on their perceived sense of self-meaning and individuality. This process revolves around striking a balance between the need to be unique, which is at odds with the need to achieve a sense of belonging and connection with those important to adolescents. It can be summarized as the balance between independent individual identity and dependent social identity. Developing a positive identity requires a strong sense of self (Fivush et al., 2008; Marcia, 2002). In this process, individuals must examine their roles and values, and make independent decisions and commitments about their work and religious and political beliefs, as well as their interpersonal social and sexual values. Drawing on these dimensions of discovery and commitment, Marcia (2002) proposed four identity statuses: (a) Achieved identity, (b) Foreclosure identity, (c) Moratorium identity and (d) Diffusion identity. Each status represents a level of discovery and commitment. Achieved identity occurs when an individual has completed the discovery process, made decisions and is now pursuing their career and ideological goals. Foreclosure identity describes a status in which an individual is committed to a set of values and beliefs and pursues a specific occupation, but there is no personal discovery, and this commitment is founded on the views and values of the parents. Moratorium identity describes an active exploration status where there is still no commitment. This is the time adolescents may strive to develop a set of guidance and belief values. Finally, Diffusion identity is the status in which individuals have neither made commitments nor explored available alternatives (Marcia, 2002). Achieved identity in adolescents is associated with low manifestation of neurotic and psychosomatic symptoms (Chen et al., 2007), improved self-esteem (Kutkienė, 2008) and emotional and mental health (Dumas et al., 2009; Ramgoon et al., 2006; Sandhu et al., 2012). On the contrary, Diffusion identity is related to mental health problems such as personality disorders and depression (Jung et al., 2013). Kalpokienė (2005) notes that various mental health problems, such as schizophrenia, depression or personality disorders, often begin in adolescence or early adulthood, which is more or less linked to identity development in adolescence.

Research shows that the development of a positive, independent identity during adolescence is more difficult for twins than for singletons because they have to extricate themselves from their

parents' control and co-twin's control (Ainslie, 1997; Alin Akerman & Suurveen, 2003; Cirillo, 1976).

The results of a 13-year follow-up study suggested that twins forge very close ties with each other, which can complicate the establishment of an identity (Alin Akerman & Suurveen, 2003). It was also found that the process of independence often resulted in aggressive disputes and conflicts between twins. If puberty occurs at different times for the twins, this can trigger a plethora of problems for the twins and their parents. This is often the case for nonidentical twins, as maturity affects their self-image and identity. As reported by parents in this study, the environment stresses adolescent independence, and parents may predict that their twins, especially identical twins, will be more likely to face developmental problems (Alin Akerman, 2003). The study found that positive identity is stronger for nonidentical twins who are sexually different, while identical twins tend to experience a more negative identity status. The identical twins may particularly have trouble with identity development because their parents tend to treat them in the same manner. It may also be difficult for twins to feel unique due to their similarity in appearance and the way others treat them on this account (Perez-Fernandez, 2013). Also, the shared grouping of twins can debilitate their individuality, which may trigger confusion about their identity (Treloar, 2010).

However, the findings of Pearlman (1990) did not support the idea that twins encounter particular problems in personality development or that twins are more likely than others to struggle with establishing and maintaining intimate relationships. He evaluated identical and nonidentical twins as well as singletons in terms of separation differentiation, object relations and self-esteem in adulthood, but did not find any significant difference between twins and singletons. In light of the contradictory reports about the problems of twins, especially identical twins, in achieving differentiation and identity, the present study seeks to compare twins and nontwins in terms of identity and differentiation.

Method

The present study is a causal-comparative study. The study population consisted of twins and nontwins aged from 13 to 30 living in Mashhad in Iran. According to Cochran's formula, the sample size must be at least 386 people. Participants were selected from twin and nontwin people of Mashhad city by purposive sampling. The sample size was 474 people in the age range of 13 to 30 years. In the term of gender, there were 280 female and 190 male participants; 259 participants were under 18 years and 215 were over 18; 128 twins were identical, 176 were nonidentical and the remaining 170 people were nontwins. There were 85 female pairs, 43 male pairs and 24 male–female pairs. In terms of education, participants under 18 years were studying in high school, and participants over 18 years were either university students or graduated.

Procedure

Participants were selected purposefully from high schools, universities and the Annual Twins Gathering in Mashhad to control the effects of economic and social level. To comply with ethical considerations, participants were asked to sign a consent form to participate in the research and they were assured about the confidentiality of their information. Questionnaires were filled out in the presence of the researchers to prevent the twins' influence on each other's responses.

Table 1. Comparison of self-differentiation among groups

Group	Age group	Gender	Descriptive statistics		Multivariate analysis variance		
			Mean	SD	Effect	F	Sig
Identical twin	Under 18	Female	3.50	0.41	Group	42.97	.0001
		Male	3.56	0.71	Gender	0.0001	.99
		Total	3.51	0.50	Age	1.37	.24
	Over 18	Female	3.47	0.52	Group*gender	0.96	.38
		Male	3.48	0.50	Group*age	0.64	.52
		Total	3.48	0.51	Gender*age	1.17	.28
Nonidentical twin	Under 18	Female	3.66	0.51	Group*age*gender	2.30	.10
		Male	3.53	0.61			
		Total	3.61	0.56			
	Over 18	Female	3.34	0.43			
		Male	3.60	0.75			
		Total	3.42	0.56			
Nontwins	Under 18	Female	3.08	0.38			
		Male	3.04	0.37			
		Total	3.04	0.38			
	Over 18	Female	3.10	0.36			
		Male	2.99	0.34			
		Total	3.07	0.35			

Tools

Objective Measure of Ego Identity Status (OMEIS). This questionnaire was developed by Bennion and Adams (1986). It measures four identity statuses of Achieved, Diffusion, Moratorium and Foreclosure. The 64-item questionnaire is scored on a 6-point Likert-type scale. Bennion and Adams reported reliability of .80 for this questionnaire. In Iran, Cronbach's alpha coefficients were reported as .76, .72, .63, .71 and .74 for Identity Diffusion, Moratorium, Foreclosure, Achieved identities and total scale, respectively (Askarian Moghadan Zanjani et al., 2017).

Self-differentiation questionnaire. This 43-item questionnaire was designed by Skowron and Friedlander (1998). The multidimensional questionnaire focuses on individuals' important and current relationships, and relationships with their family. It comprises four subscales of emotional reactivity, I position, emotional cutoff and fusion with others, which are scored on a 6-point Likert scale (1 = *does not apply at all* and 6 = *greatly applies*). The score of the full scale is divided by the number of items, so that means of scores range from 1 to 6 and higher scores reflect greater differentiation. The higher scores of self-differentiation indicate that a measure of autonomy is maintained, as well as intimate relationships, while operating well on both emotional and rational levels. The developers used Cronbach's alpha to assess the internal consistency of the questionnaire, reporting a Cronbach's alpha of .88 for the whole questionnaire and .74–.84 for its subscales. In Iran, Younesi (2006) assessed the reliability of the Persian version of this questionnaire, reporting a Cronbach's alpha coefficient of .85.

Results

In the present study, the independent variables included three groups of identical twins, nonidentical twins and nontwins, and the dependent variables included self-differentiation and identity status. Multivariate analysis of variance was used to analyze the data.

The assumption of the equality of error variance was examined using Levene's test. The results showed that Foreclosure identity ($F = 1.70, p > .07$), Diffusion identity ($F = .97, p > .07$), Achieved identity ($F = .90, p > .53$), Moratorium identity ($F = 1.43, p > .15$) and self-differentiation ($F = 1.75, p > .06$) had equality of error variances.

Box's test of equality of covariance matrices of the dependent variables was significant ($F = 2.50, \text{sig} = .0001$). This significance was due to the unequal volume of groups, so Pillai's trace was used to report the effects. Pillai's traces were significant for group effect ($F = 9.81, p < .0001$), gender effect ($F = 4.23, p < .001$) and age ($F = 8.58, p < .0001$).

As Table 1 shows, self-differentiation differed significantly between twin and nontwin groups while there were no significant differences between females and males or age groups. Scheffe's *post hoc* test showed that self-differentiation of identical and nonidentical twins was significantly higher than nontwins ($p < .0001$). Partial eta squared and Cohen's F were .18 and .46, respectively, indicating strong effect sizes, as shown in Figure 1.

Table 2 shows that level Foreclosure identity was similar among identical twins, nonidentical twins and nontwins.

Table 3 shows that identical, nonidentical twins and nontwins were significantly different in terms of Diffusion identity. Scheffe's *post hoc* test showed that Diffusion identity of identical and

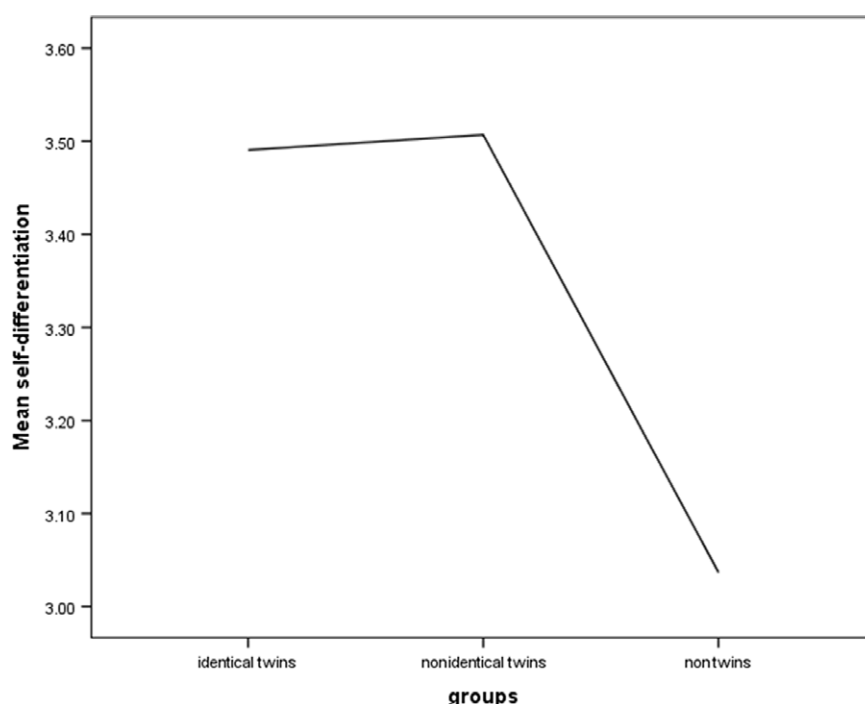


Fig. 1. Comparison of self-differentiation in identical, nonidentical twins and nontwins.

nonidentical twins was significantly higher than nontwins ($p < .0001$). Partial eta squared and Cohen's F were .01 and .10, respectively, indicating weak effect sizes. Also, there was a difference among people over 18 and under 18 years in terms of Diffusion identity. The effect sizes of partial eta squared and Cohen's F were moderate, that is, .06 and .25, respectively. The effect size related to the interaction between group, age and gender was also weak (partial eta squared = 0.02, Cohen's F = 0.14). Figure 2 shows that twins under 18 years had scores higher than nontwins and twins over 18 years among both genders. Also, Figure 2 reveals that girls aged over 18 had the lowest score in Diffusion identity.

Table 4 shows that for Moratorium identity, twins and nontwins were not significantly different. However, there was a significant difference between females and males as females were significantly lower than males for Moratorium identity ($p < .0001$).

Table 5 shows that twins and nontwins were not different in terms of Achieved identity. Also, there are no differences between females and males and people under 18 years and over 18 years.

Discussion

This study aimed to investigate self-differentiation and identity statuses in twins. The results revealed that identical and nonidentical twins were not different in terms of self-differentiation while twins were significantly higher than nontwins. This result is inconsistent with studies by Cetin et al. (2012) and Pearlman (1990) that did not find any significant difference between identical and nonidentical twins in terms of separation–differentiation. Incongruous results can be due to different measurement tools as well as age range of sample. For example, Cetin et al. (2012) and Pearlman (1990) used questionnaires about separation–individuation in adolescents and adults, which did not measure items that reflect problems in achieving a balance between intimacy and autonomy (Skowron & Friedlander, 1998).

Given differentiation of self as the ability to experience intimacy with and independence from others is important for development and psychological health (Skowron & Friedlander, 1998), it seems that the presence of same-age siblings with common experiences can provide the grounds to develop self-differentiation. Twins can establish a close relationship while maintaining their autonomy, and this intimate relationship can play a supportive role in coping with stressful life situations (Nolen-Hoeksema et al., 2009).

The high score of self-differentiation among twins can be explained because they tend to differentiate their personality from their co-twin (Maxon & Daniels, 2008). Loehlin (1981) posited that the interaction of twins increases their tendency to be different to one another. As such, they create artificial differences with their twin. This arbitrary differentiation of twins may hinder their development of personality (Ainslie, 1997).

The lack of difference between identical and nonidentical twins in the investigated variables indicates strong environmental effects on these twins, chiefly because they have been raised in the same environment. The twins' natural inclination to behave as a single person may be suppressed due to the expectations of others, or even the pressure to align their behavior with their twins. To behave in a way comparable to your co-twin may be regarded as the denial of one's individuality; however, due to similar genes and life experiences, a greater identical behavior may be more positively received than an individual identity (Hay & Preedy, 2006). Watzlawik (2009) found that in all siblings, the areas that make sense of similarities and differences are divergent. The similarities are mainly perceived in shared interests, abilities and activities, while differences are mainly attributable to personality traits, character and physical features. Given identity statuses and self-differentiation often embrace roles and values, they are more influenced by shared interests, abilities and activities. In this regard, we found no difference between the twins.

Table 2. Comparison of foreclosure identity among twins and nontwins

Groups	Age group	Gender	Descriptive statistics		Multivariate analysis variance		
			Mean	SD	Effect	F	Sig
Identical twins	Under 18	Female	46.66	10.22	Group	0.35	.71
		Male	48.94	9.21	Gender	3.58	.059
		Total	47.26	9.94	Age	2.82	.09
	Over 18	Female	51.82	11.29	Group*gender	0.22	.79
		Male	51.52	9.29	Group*age	1.51	.22
		Total	51.69	10.39	Gender*age	1.11	.29
Nonidentical twins	Under 18	Female	49.40	9.31	Group*age*gender	1.13	.32
		Male	49.88	11.43			
		Total	49.60	10.21			
	Over 18	Female	49.58	9.07			
		Male	54.53	16.26			
		Total	51.16	11.97			
Nontwins	Under 18	Female	50.63	9.75			
		Male	50.62	12.01			
		Total	50.62	10.99			
	Over 18	Female	47.34	9.48			
		Male	52.37	11.81			
		Total	48.93	10.45			

Table 3. Comparison of diffusion identity among identical, nonidentical twins and nontwins

Groups	Age group	Gender	Descriptive statistics		Multivariate analysis variance		
			Mean	SD	Effect	F	Sig
Identical twins	Under 18	Female	50.5745	14.47448	Group	4.13	.01
		Male	53.0588	16.89109	Gender	2.80	.09
		Total	51.2344	15.05518	Age	27.01	.0001
	Over 18	Female	51.0000	14.06903	Group*gender	2.32	.09
		Male	47.8800	14.48367	Group*age	3.02	.05
		Total	49.6552	14.20841	Gender*age	2.21	.13
Nonidentical twins	Under 18	Female	54.3778	16.32662	Group*age*gender	4.00	.02
		Male	62.1471	14.77945			
		Total	57.7215	16.05514			
	Over 18	Female	50.3833	12.92625			
		Male	44.2500	17.00898			
		Total	48.4318	14.53794			
Nontwins	Under 18	Female	50.8372	13.78047			
		Male	54.9623	16.39531			
		Total	53.1146	15.34095			
	Over 18	Female	37.5366	12.86098			
		Male	47.6316	16.89250			
		Total	40.7333	14.88699			

Regarding the high level of self-differentiation in twins, as twins have similarities and their common activities and interests with each other, they may feel a greater need to differentiate themselves

from others and define themselves as a unique and determinant person. Therefore, twins showed an inverse reaction to be independent and different.

Table 4. Comparison of twins and nontwins in terms of the moratorium identity

Groups	Age group	Gender	Descriptive statistics		Multivariate analysis variance		
			Mean	SD	Effect	F	Sig
Identical twins	Under 18	Female	52.06	13.36	Group	0.82	.44
		Male	58.88	8.13	Gender	17.75	.0001
		Total	53.87	12.50	Age	0.01	.90
	Over 18	Female	55.06	12.50	Group*gender	2.80	.06
		Male	59.52	8.81	Group*age	0.48	.62
		Total	56.98	11.20	Gender*age	1.78	.18
Nonidentical twins	Under 18	Female	59.13	9.17	Group*age*gender	1.26	.28
		Male	57.62	11.60			
		Total	58.48	10.24			
	Over 18	Female	55.67	10.46			
		Male	59.93	13.11			
		Total	57.02	11.47			
Nontwins	Under 18	Female	54.95	12.42			
		Male	59.57	11.35			
		Total	57.50	12.00			
	Over 18	Female	51.24	10.78			
		Male	61.63	9.96			
		Total	54.53	11.52			

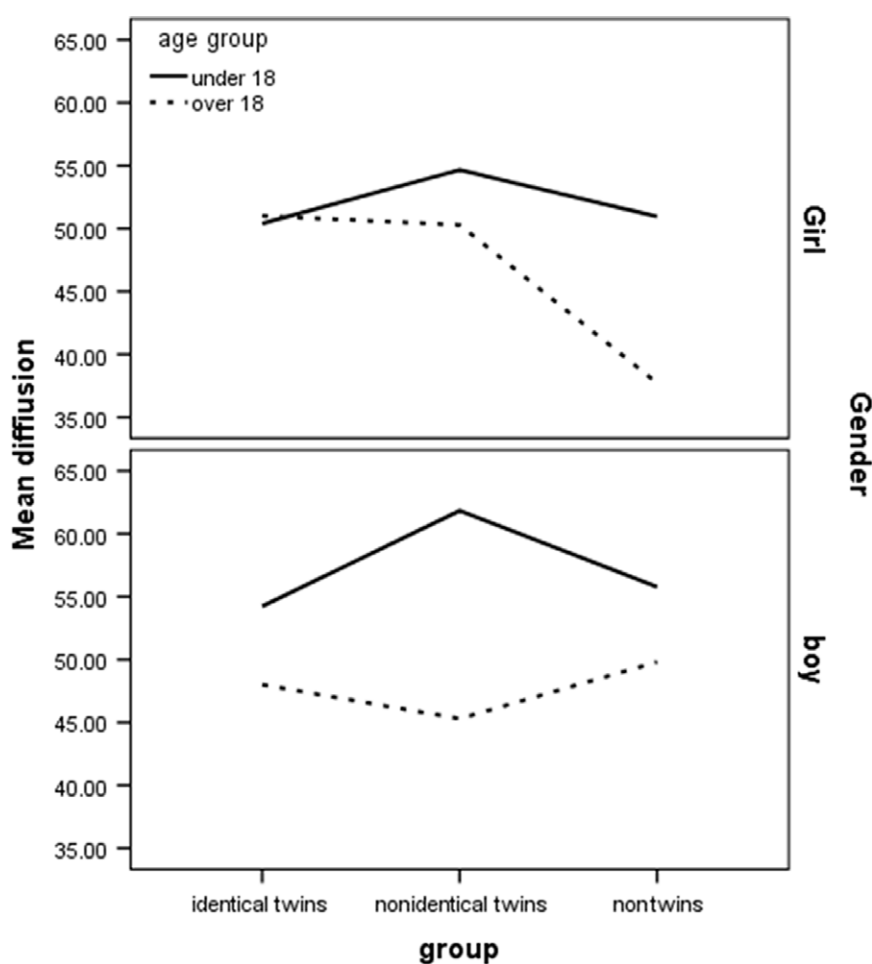
**Fig. 2.** Interaction effect of age and group in terms of diffusion identity.

Table 5. Comparison of twins and nontwins in terms of achieved identity

Groups	Age group	Gender	Mean	SD	Multivariate analysis variance		
					Effect	F	Sig
Identical twins	Under 18	Female	67.17	10.27	Group	0.24	.78
		Male	68.64	8.41	Gender	1.83	.17
		Total	67.56	9.77	Age	0.61	.43
	Over 18	Female	68.67	9.39	Group*gender	1.21	.30
		Male	65.52	8.15	Group*age	1.95	.14
		Total	67.31	8.94	Gender*age	2.21	.13
Nonidentical twins	Under 18	Female	65.73	11.20	Group*age*gender	1.36	.25
		Male	66.91	8.81			
		Total	66.24	10.20			
	Over 18	Female	67.43	9.29			
		Male	72.00	11.40			
		Total	68.88	10.17			
Nontwins	Under 18	Female	66.37	8.17			
		Male	68.35	9.12			
		Total	67.47	8.72			
	Over 18	Female	66.14	9.72			
		Male	68.05	10.90			
		Total	66.75	10.05			

To achieve a positive identity, individuals need to be unique and independent of the important figures in their life, which is a key feature of self-differentiation. Although twins may achieve separation from their parents, they may still be emotionally attached to each other.

The results showed that identical, nonidentical twins and nontwins are significantly different in terms of Diffusion identity. Despite the significant differences found between the groups, the effect sizes of partial eta squared and Cohen's *F* were weak and therefore this finding is not reliable. Also, the results indicated that adolescents' Diffusion identity scores were significantly higher than adults in which the effect size was moderate, and this finding can be considered somewhat reliable. According to the results, it can be concluded that twin adolescents had a higher score in Diffusion identity. Regarding effect sizes related to the interactions between the groups of twins and nontwins, age groups and gender, it can be said that this effect size was also weak and unreliable.

Given that self-differentiation is a structure associated with positive psychological consequences while Diffusion identity is associated with negative outcomes, the present study found that twins score high in self-differentiation and Diffusion identity, which would seem contradictory.

A high score for confusion means that the person has not yet considered their options for choosing a job or field of study, and political and religious orientations, to commit to their goals (Marcia, 2002). It seems that adolescent twins still think less about their future and future-related choices because of their close and secure relationship with each other. As these results show, with a slight delay compared to nontwins, twins also begin to examine their identity issues.

It seems with increasing age, their identity problems diminish in twins. This alleviation of identity problems may be influenced by cognitive development and decreased emotional problems. In this

regard, Alin Akerman and Suurvee (2003) point out that desirable identity development also implies deep thinking abilities and that emotional development is considered as a determinant of an adolescent's cognitive development.

The results show that levels of Foreclosure, Moratorium and Achieved identities are similar among identical twins, nonidentical twins and nontwins. In all of these three identity statuses, an individual is either committed to the roles and values or has explored these domains. In other words, the individual seeks to acquire a sense of self that is necessary for establishing a positive identity (Fivush et al., 2008; Marcia, 2002).

Findings revealed that females were significantly lower than males in the Moratorium identity. Given that puberty usually occurs for females at a lower age than males, they may pass Moratorium identity sooner than male. A limitation of this study was that the main data collection instrument was self-report questionnaires, which may elicit biased answers. Another limitation was the low sample size, which may have affected the findings of study, and further studies with larger samples should be conducted. It is suggested that future research explores the role of mental health and emotional health in determining identity and self-differentiation statuses, and other tools such as interviews and other types of questionnaires should be adopted.

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Conflict of interest. None.

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