



Original Article

A study on the Minnesota Multiphasic Personality Inventory-Adolescent scores based on Marcia Identity Statuses in adolescents

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Abstract

Introduction: Considering the important role of identity formation in adolescents and the ensuing problems that can pave the way for psychopathology in the next developmental stages, the present study attempts to study the personality profile of teenagers in different identity statuses using Minnesota Multiphasic Personality Inventory-Adolescent (MMPI-A)

Materials and Methods: The current study employs a cross-sectional ex-post facto method. All high-school and pre-university level students in Tehran constituted the population of the present study. Multi-stage clustering method was used for sampling. The population of the study comprised of 506 students (273 female and 276 male students) who were selected randomly from four districts of Tehran. They were asked to answer the questions of Minnesota Multiphasic Personality Inventory-Adolescent. The obtained data were analyzed by SPSS version 18 and descriptive statistics.

Results: The mean scores for all subscales in all identity statuses and in all areas proved to be normal. Only the paranoia subscale in female students who were in Identity moratorium status was in gray area (T scores between 60 and 65). Although it is not clinically significant, it may lead to some potential problems.

Conclusion: Our findings showed that the personality profile of the population in identity statuses of Identity foreclosure, Identity moratorium, and Identity diffusion were normal. As predicted by Archer (2005), this test (MMPI-A) can distinguish between normal and pathological ranges considering identity crises issues in adolescents and the problems they commonly deal with.

Keywords: Adolescent, Identity, Personality, Scale

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Introduction

Development from childhood to adolescence happens with significant biological, mental and social challenges. It is commonly believed that development and growth process is reflected in adolescents' emotional states, attitudes and behavioral patterns (1). This period is characterized by rapid physiological changes, attaining abstract thinking capabilities, lack of behavioral stability and balance, concerns for future, an attempt to attain others' acknowledgement, especially that of peers', and dreamlike and fantastical moods. Although all these changes contribute to adolescents' growth, they can pose great problems to them (2).

Erikson used the term identity formation to identify

and interpret the issues belonging to this period. He stated that identity is a rather stable feeling of uniqueness (3) and its main purpose during this stage is the formation of a state with identity stability (4). Erikson's mental-social growth stages show that the preliminary and fundamental objective of adolescents is a stable and consistent development of identity against identity confusion which is a mental-social responsibility. Erikson stated in his theory that adolescents' challenge in the formation of the definition of "self" and assessing their various options in different areas (such as choosing academic major, job, and the network of friends...) all involve a crisis that is experienced at this stage and these experiences should be differentiated from psychopathology (Archer, 2005). On the other hand, Erikson confirmed that adolescents' incapability to cope with this crisis is considered as abnormal as the individual has failed to find a proper answer for his/

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her questions and does not know who he/she is and what role he/she plays in the world. This confusion shows up as various behavioral problems such as running away from home, delinquency or even psychosis (5).

The issue of identity has also been studied by other various psychologists after Erikson. One of the most well-known and developed theories in this regard is the identity status paradigm proposed by Marcia in 1966 (6,7). The outcome of identity seeking process was delineated by Marcia as a two-dimensional axis comprised of commitment and exploration. Exploration means the extent to which an individual assesses various values, beliefs, and social roles (such as choosing job options, relationship with the opposite sex, family roles, and ...) while commitment denotes attainment of a constant set of values and objectives (4). The combination of these two dimensions brings about four identity statuses: identity achievement (exploration and firm commitment to values), identity foreclosure (committing without exploration, and accepting parents' and authorities' values and beliefs), identity moratorium (exploration without achieving commitment), and identity diffusion (lack of exploration and sense of commitment) (8). Marcia's fourfold identity is not necessarily the different stages of a development chain, and not of a constant nature, and thus may undergo many changes in time (9). However, Marcia emphasized that identity crisis is resolved at ages 18 to 22, and identity statuses attempt to measure the identity at the last years of adolescence (7).

Many research studies confirm that identity achievement and moratorium are psychologically healthy paths to identity maturity. In contrast, long-term identity foreclosure and identity diffusion are considered as maladaptive, and are related to various types of physical and psychological disorders (internalized and externalized disorders) (6,7,10-13). It can thus be concluded that many adolescent disorders are rooted in identity confusion that lead to role confusion in adolescents. Erikson stated that in case adolescents get confused with regard to their identity, they cannot complete the exploration phase successfully to attain commitment, and thus delinquency would be prevalent. If these issues are identified and treated at the right time, it can prevent many issues in adult years (14). Due to the increase in the number of adolescents and the youth in the population makeup of Iran (15), the significance and necessity of identifying adolescents' personality traits considering the problems and crises specific to this

period for accurate identification and its treatment gets clearer day by day. There are various tools for measuring personality traits. One of the tools most employed in clinical and research centers is called "Minnesota Multiphasic Personality Inventory-Adolescent." Archer et al. showed that MMPI-A can be of the most applicable tools for adolescents. This test can be a proper diagnosis/screening tool for identification of various disorders in adolescence (16).

Archer (17), in his book drawing upon theories of Stanly Hall, Ana Freud, and Erikson, stated that an adolescent that faces great biological, cognitive and psychological changes, and adolescents who do not show such changes, are exposed to maladaptation. Quoting Ana Freud, he mentioned that adolescents show changes in some of their traits (expressing their love to their family or hating them, revolting against family and dependency upon them, and following others in contrast to searching for various options for attaining certainty can be mentioned as examples). All these can lead to some subscales (such as Schizophrenia, Paranoia, and social deviations), while all these are not pathological and should be considered as normal and natural.

Even though it is obviously difficult to draw a border between these issues as being psychopathological or normal, the designers of MMPI-A claim that, considering the importance of this period and the great biological, cognitive and psychological changes that take place in this period, it provides a tool to healthcare professionals for distinguishing adolescents with psychopathological issues from normal adolescents. Considering the important role of identity development in adolescents and the pursuant issues of this stage that can have endurable effects on later development stages, this question comes to mind whether MMPI-A has been able to identify different dimensions of adolescents' identity development in their psychopathological diagnosis and whether the individuals in an identity status of lower maturity will have higher T scores in the subscales of this test.

Materials and Methods

550 students ranging from 15 to 18 years old (SD=1.21, M=16.53) and from four different educational districts in Tehran took part in this study. 44 participants were removed from the study because of submitting incomplete questionnaires; thus, the size of the study population reached 506 pupils (273 male and 233 female). The distribution of pupils in the first, second, third, and fourth high-

school grades was 123, 132, 131, and 120, respectively. 27.5 percent of pupils were studying mathematics, 26.3 percent were studying experimental sciences, 22.1 percent of pupils were studying humanities, and 22.1 percent were first graders (general). Pupils were also asked about their parents' educational level: 12.5 percent of mothers had pre-diploma education, 52 percent held diploma degrees, 27.1 percent were bachelor's, and 8.5 percent were master's and PhD. With regard to fathers, 7.3 percent had pre-diploma education, 33.4 percent held diploma degrees, 32.2 percent were bachelor's, and 27.1 percent were master's and PhD. The inclusion criterion for study population was the age of 15 to 18; the exclusion criteria included: 1. any failure records in any of the educational grades; 2. Not signing the ethical consent letter, 3. Any of the MMPI-A validity subscales scores exceeding the normal threshold ($T > 65$).

Research instruments

- *Ego Identity Process questionnaire (EIPQ)*: This questionnaire is of 64 items that are answered in the form of Likert scale (strongly agree to strongly disagree). Marcia designed this questionnaire according to Ego identity status model so as to study the ideological values of politics, religion, and life philosophy under the name "ideological identity" as well as interpersonal and social relations, including aspects of friendship, relationship with the opposite sex, sexual roles and co-creation under the name "interpersonal identity" (18). Boys and Chandler (19) studied 61 male and female pupils in 8th to 12th grades of high school. Using Cronbach's alpha, they indicated a proper reliability for this tool. O'Conner (20) estimated the Cronbach's alpha of this tool in a range from 0.65 (for women at identity diffusion stage) to 0.83 (for men at identity foreclosure stage). Gharraee (5) assessed the reliability of this tool in her study on an Iranian population comprised of 30 adolescents (15 male and 15 female) in a two-week period. The obtained Cronbach's alpha for different statuses stood in a range from 0.71 to 0.91, while the value stood at 0.95 in the test-retest.

- *Minnesota Multiphasic Personality Inventory-Adolescents (MMPI-A)*: This questionnaire is of 478 true-false items comprised of 10 Clinical scale items, 6 Validity indices, 31 Harris Lingoes subscale, 15 content scales, 5 Personality Psychopathological scales, 3 Social introversion subscales, and 6 Supplementary scales (17). The test-retest coefficient in the standardized sample stood between 0.49 and 0.5 for validity scales and between 0.6 and 0.82 for clinical scales. Internal consistency coefficient was also obtained through

Cronbach's alpha which stood between 0.4 and 0.89 for validity scales, and between 0.55 and 0.83 for clinical scales (21). Gharraee, Ashouri, and Habibi (22) have been studying the psychometric properties of MMPI-A in Iran. The obtained results so far indicate that this tool is of satisfactory psychometric properties to be used for Iranian adolescents. The minimum and maximum test-retest coefficients stood at 0.41 (infrequency) and 0.82 (social introversion), respectively. The reliability level of all validity indices (except variable response inconsistency and true response inconsistency) is above 0.61. The obtained reliability level of all clinical scales also is higher than 0.69 (except hypochondriasis). The diagnostic validity assessment of this tool shows that the cut-off score is equal to the standard score $T=65$, and is of acceptable clinical efficiency and sensitivity.

After obtaining permission from ethical committee of university and coordination with Education Office, the informed consent completed by all participants then this research instrument conducted in classroom. Data analyzed by descriptive statistics (mean and standard deviation) and SPSS software version 18.

Results

Tables 1 and 2 show the mean and standard deviation of participants' scores in EPIQ and in clinical and validity subscales of MMPI-A.

Table 1. Descriptive indices related to clinical and validity indices of MMPI-A divided by gender

T Score of AMMPI subscales	Female		Male	
	Mean	Standard Deviation	Mean	Standard Deviation
VRIN	50.36	9.07	49.78	9.83
TRIN	48.77	8.48	51.66	8.86
F ₁	51.09	8.88	49.06	10.50
F ₂	51.02	9.27	49.11	10.27
F	51.10	8.99	49.05	10.51
L	49.32	9.17	50.72	10.03
K	49.38	9.29	50.53	10.35
Hs	49.51	9.96	50.42	9.79
D	48.88	9.13	50.96	10.42
Hy	49.79	9.69	50.18	10.07
Pd	51.73	8.93	48.52	10.42
Mf	57.14	6.18	44.54	6.88
Pa	49.80	9.59	50.17	10.14
Pt	49.78	9.40	50.19	10.29
Sc	49.60	9.26	50.34	10.41
Ma	50.11	9.19	49.91	10.45
Si	49.28	9.06	50.61	10.52

Table 2. Descriptive indices related to identity statuses divided by gender

Ideological Identity Statuses	Female		Male	
	Mean	Standard Deviation	Mean	Standard Deviation
Identity Diffusion	29.35	4.36	29.22	6.02
Identity Foreclosure	32.29	5.94	32.03	6.21
Identity Moratorium	27.75	5.23	27.50	5.43
Identity Achievement	25.47	6.96	25.89	7.63
Interpersonal Identity Status				
Identity Diffusion	31.70	6.03	31.62	6.09
Identity Foreclosure	28.96	6.72	30.97	7.15
Identity Moratorium	26.69	5.42	26.26	6.60
Identity Achievement	24.98	5.38	25.01	5.33

Adolescents' personality profile in interpersonal and ideological statuses of identity foreclosure, identity Moratorium, and Identity Diffusion are shown in figures 1 to 6, as divided by gender.

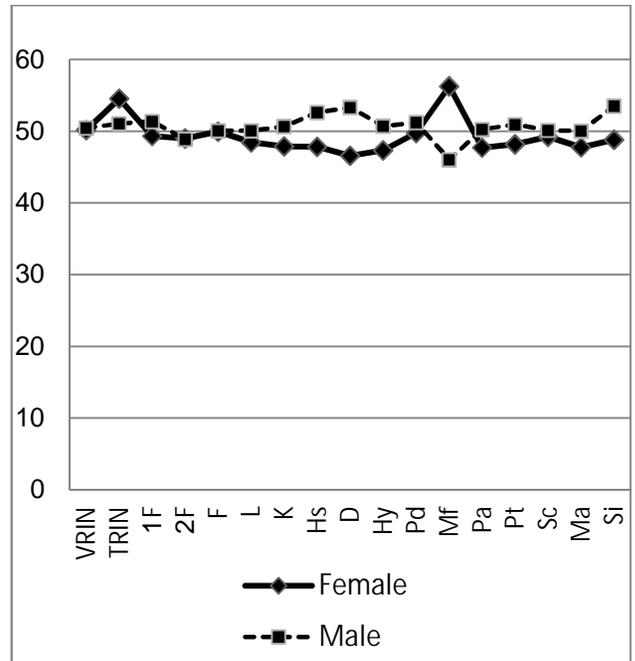


Figure 2. Adolescents' personality profile, divided by gender, in interpersonal identity status of identity foreclosure

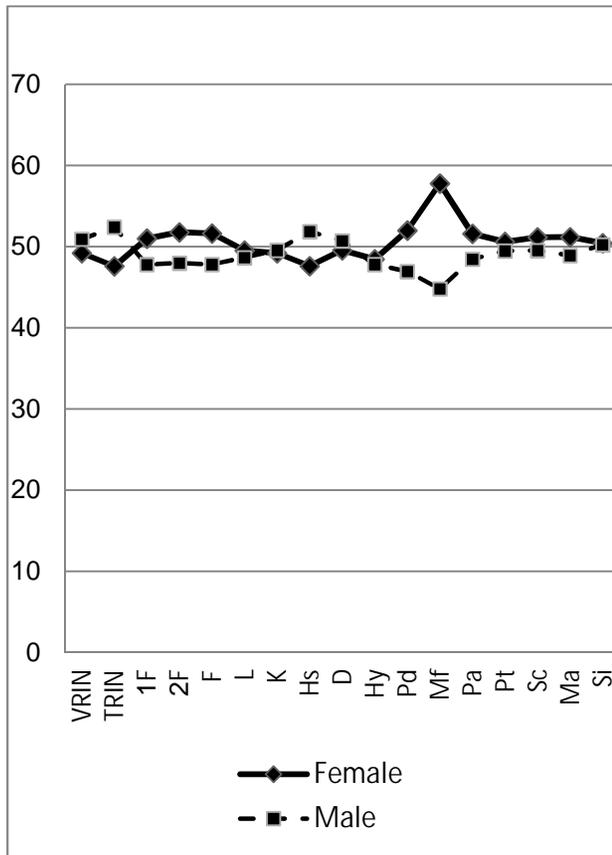


Figure 1. Adolescents' personality profile, divided by gender, in ideological identity status of identity foreclosure

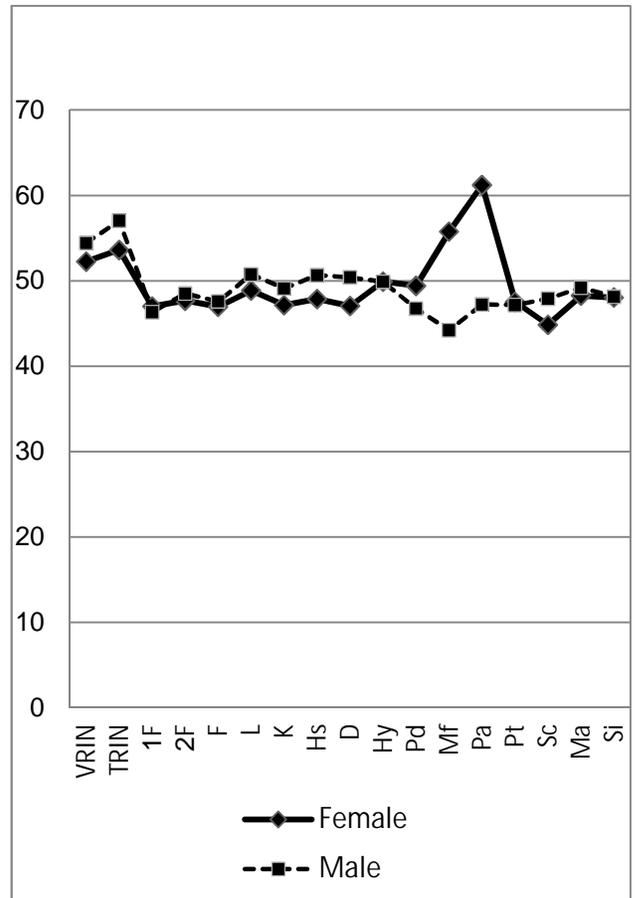


Figure 3. Adolescents' personality profile, divided by gender, in ideological identity status of identity moratorium

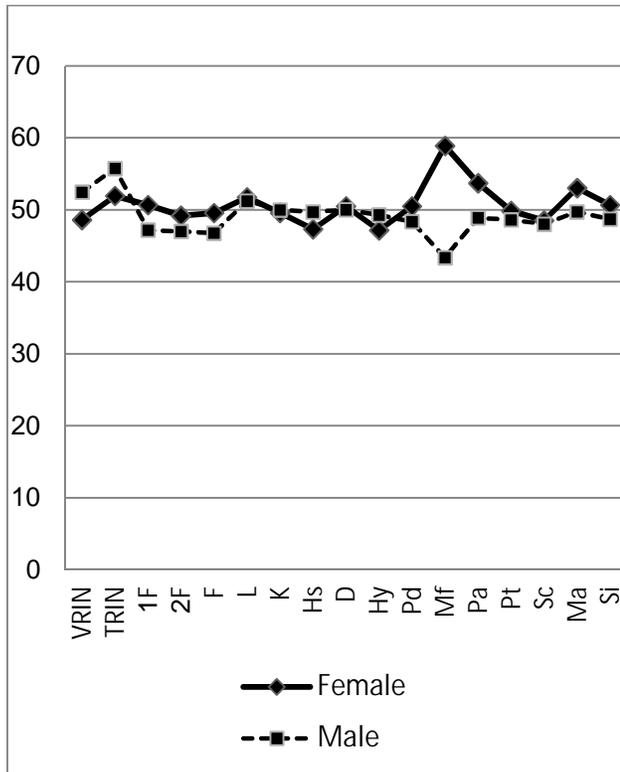


Figure 4. Adolescents' personality profile, divided by gender, in interpersonal identity status of identity moratorium

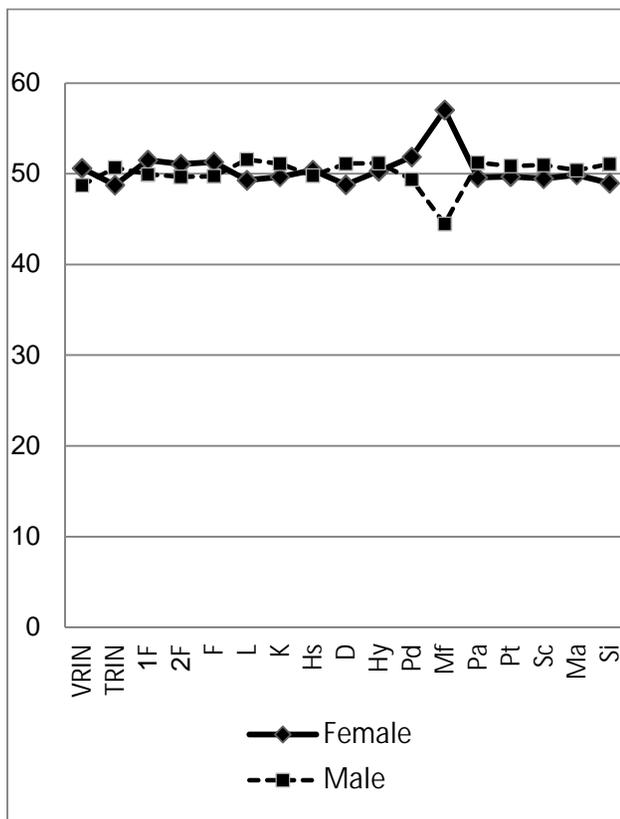


Figure 5. Adolescents' personality profile, divided by gender, in ideological identity status of identity diffusion

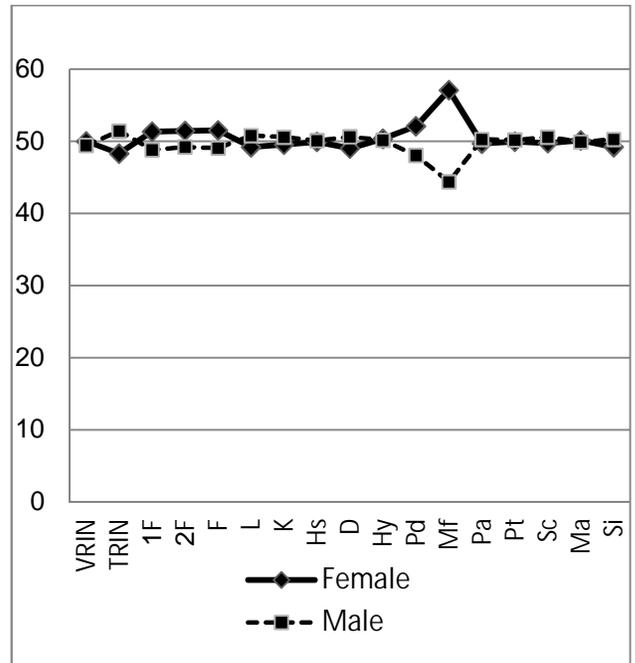


Figure 6. Adolescents' personality profile, divided by gender, in interpersonal identity status of identity diffusion

Discussion

Before dealing with the findings of the study, it is worth to note that Marcia emphasized in his theory that the impacts of identity crisis should be measured between the years 18 and 22, and it is unlikely for adolescents to have reached identity achievement before this age (23); thus, identity achievement status has been skipped. As predicted, none of 506 students had achieved the identity achievement stage. The results obtained from the statistical population of high-school students prove the above as well. For instance, the study conducted by Gharaee on high school 3rd graders and pre-university level revealed that a small percentage of students were at identity achievement stage (8.8% of ideological identity, and 6.11% of interpersonal identity).

The average score of validity and clinical scales in Identity Foreclosure, Identity Moratorium, and Identity Diffusion statuses were in the normal range, despite the great differences in the traits of the people who were in each of these statuses. As discussed by Archer (17), the range of 40 to 60 is considered as normal in scoring and interpretation of MMPI-A profiles. MMPI-A can also differentiate between elevated normal scales and elevated clinical scales. In contrast to the main MMPI that makes use of a cut-off point between normal and clinical elevated ranges, MMPI-A features a gray zone (24). This zone for T scores ranges between 60 and 65, and is a transitional area between the normal and

clinical values. If an individual's score is somewhere in this range, then it indicates a potential area for concern for that individual, but it is not clinically significant (24). As discussed before, Archer maintained that the new version of the test, that was specifically designed for adolescents, attempted to consider all physiological, cognitive, and psychological changes that occur at this stage and could affect how adolescents answer the items; this was an attempt to provide a tool to practitioners to distinguish between psychological pathology and normal adolescents who are passing through identity crisis stages (17). In identity foreclosure status that is of lower maturity in Marcia's theory, it is witnessed that the average of students' scores is in the normal range, and only the clinical scales of Mf in the girls and Hs in boys, among all clinical scales related to ideological identity status of identity foreclosure, were of higher average that was close to the gray area. Also in the interpersonal identity foreclosure status, boys and girls had obtained higher average scores in Mf and Hs respectively, while they were in the normal range. It can thus be mentioned that the present research emphasizes Archer's claim with regard to considering adolescents' growth issues, while the few studies conducted previously focused on the assessment of the relationship between different stages of adolescents' identity development and their psychopathology using the main version of MMPI, which is specifically designed for adults and is normalized based on this age group, obtained different results. For instance, the results obtained by Gold (25) who studies the relationship between ego development and adolescents' adaptability patterns showed that adolescents who are at lower levels of ego development, obtained higher significant scores in Hypochondria, Schizophrenia, mental weakness and Hypomania scales. Adolescents who were at higher levels of ego development obtained higher scores in K scale and social desirability. Gold used MMPI personality questionnaire to assess the adaptability patterns of his/her study population.

Also in another study conducted by Oshman and Manosevitz (26), the relationship between identity statuses and MMPI scores was assessed. The results of their research showed that individuals with greater maturity (who are at Marcia's identity achievement status), obtained normal range scores in MMPI test. Individuals who were at Identity moratorium (exploration without commitment) obtained such scores that indicated some psychological conflicts. The score pattern of

individuals at Identity foreclosure status was similar to that of individuals at identity moratorium status. The MMPI score pattern of individuals who were at depressed identity status was also in the normal range. Additionally, only the Pa scale in girls who were at Identity moratorium status were in the gray area; although this is not clinically significant, it can lead to some potential problems.

Maladjustment with parents is reported in considerations related to medium elevations in Pa in girls. These individuals have also been reported to reveal certain traits such as irritability, anxiety, and obsessive behaviors (27). These results confirm those obtained by previous research studies showing that adolescents at identity moratorium status may face problems such as excessive anxiety, conflict with authorities, and resistance against them. Adolescents at this stage attempt to discover their favorite options and thus they may have doubts with regard to lots of problems, and seek new solutions; this justifies this crisis to some extent (28).

The results of the current study is in line with the theories developed by theorists such as Erikson and Marcia who have considered identity formation as one of the responsibilities of adolescents, and have maintained that adolescents' struggle for a definition of "self" and evaluation of different options (such as choosing their academic major, job, network of friends, and etc....) are all part of the crisis that adolescents experience at this stage. The present study also showed that adolescents' personality profile in the three identity statuses were normal, and Archer (17) has been able to provide a test for differentiating between adolescents with psychopathological problems and normal adolescents, considering all issues and crises of this period. However, as mentioned by Erikson, it is worth to note that the inability to cope with this crisis is considered as abnormal as the individual has not yet been able to find an answer for his/her questions and, thus, does not know who he/she is and what role he/she is playing in the world. These confusions emerge as home running, delinquency, or even psychoticism (5). Thus, it seems necessary to identify the issues of each identity status and their impact on personal, family, and educational life, and in general, on the society; this can help with introducing a proper and educational intervention to assist adolescents to overcome their identity diffusion and achieve a consolidated identity. This also leads to a decrease in financial and spiritual damages to adolescents, families, and the society.

This test is able to differentiate all identity crisis issues from psychopathological issues. It is

mandatory to take developmental issues into consideration in the interpretation of this test.

Conclusion

The present study aimed to assess adolescents' personality profile at different identity statuses using MMPI-A inventory. Our findings showed that adolescents' personality profile who were at identity foreclosure, identity moratorium, and identity diffusion were in the normal range. As predicted by Archer, this test (MMPI-A) is able to differentiate normal adolescents from those suffering from psychopathological issues, considering all identity crisis issues of adolescents. This crisis is considered normal for adolescents and this test helps to prevent

it from being regarded a psychopathological condition in the adolescents' personality profile.

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