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Confirmatory Factor Analysis on Multidimensional Adjustment Scale

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Abstract

The purpose of the study was to exam the factor structure of the Multidimensional Adjustment Scale (MAS). The sample consisted of 166 female and 114 male between 19 to 62 years old. All participants filled out the MAS. The MAS consisted of five subscales: personal, social, academic, family, and job. Each subscale includes 3 items with a nine-point scale. To check the factor structure of the MAS, Maximum Likelihood (ML) factor analysis was used. The results of the ML factor analysis revealed that there is a three factors structure for the MAS. These extracted factors were named personal/inter-personal adjustment, academic adjustment, and work and family adjustment. Alpha coefficients for these factors were ranged between .86 to .90. In sum, the results confirm a three factor structure for the MAS. Also the results showed that the factor structure is a valid and reliable for research job.

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1. Introduction

How does one behave when he/she faces with academic or interpersonal problems? Commonly, there are individual differences to find a balance position in problem situations. Adjustment refers to a process of internal or external change that provides a new balance level between organism and environment (internal or external).

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Individuals make this balance in different levels. One may has different performance to make it in different context. For example someone is able to make an efficient level of adjustment in academic situation but is not able to make it in interpersonal interactional situation. To assess the ability to make adjustment in different areas, Sohrabi and Samani (2015) developed a multidimensional adjustment scale (MAS). The MAS assesses five areas of adjustment: academic, social, family, job, and personal. The MAS consisted of 15 items. Each three items assess an area or dimension of adjustment (Appendix A). Sohrabi and Samani (2015) design the MAS based on Mundt and Marks, et al. (2002). Mundt, et al. (2002) develop an adjustment scale to assess work and social adjustment. The Work and Social Adjustment Scale (WSAS) consisted of five items with a nine-points scale from not at all (0) to very severely. As well as WSAS, the lower score in the MAS shows a better level of adjustment.

Alpha coefficient for the subscales of MAS were between 0.69 to 0.82 and this index for total score of the MAS was 0.90 (Sohrabi and Samani, 2015). Also the scores of the MAS showed negative correlation coefficients with the Depression, Anxiety, and Stress Scale (Samani and Jowkar, 2007). According to Sohrabi and Samani (2015) the MAS has an acceptable divergent and convergent validity for clinical and research jobs.

The main purpose of the study was to check the factor structure of the MAS. According to the initial study, the MAS consists five factors: academic adjustment, social adjustment, family adjustment, job adjustment, and personal adjustment.

2. Method

The sample consisted of the sample consisted of 125 male and 78 female between 19 to 62 years old. All participants filled out the MAS. The MAS includes 15 items with a nine-point scale from 0 (not at all) to 8 (very severely). Each three items assess an area of adjustment. The MAS consisted of five factors: personal, academic, social (inter-personal), family, and job. Here to check the factor structure of the MAS a maximum likelihood factor analysis was run. Three to six factor solutions was run in this study to test the factor structure of the MAS. To check the internal consistency of the scale, Cornbach's alpha was used.

3. Results

Maximum likelihood (ML) factor analysis was used to exam five factors structure of the MAS. The KMO index for this analysis was 0.90 and the chi square of Bartlett's test of sphericity was significant. Table 1 shows these two indexes.

Table1. The KMO and Bartlett's test of sphericity

KMO	0.90
Bartlett's test of sphericity	Chi=1841.67, df=105, p< 0.0001

Although based on exploratory factor analysis (PC) a five factor structure was suggested, the results of ML factor analysis confirm a three factors structure. Table 2 display eigenvalue and percent of variance for these extracted components. These three factors computed more than 58 percent of the total variance of the MAS. The chi-square for the Goodness-of-fit test was 198.25 (df=63 and p<0.0001).

Table 2. The eigenvalues and percent of variance for extracted factors

Component	Eigenvalue	% of variance
1	3.76	25.08
2	3.01	20.10
3	1.96	13.11

These extracted factors named *personal and inter-personal adjustment*, *academic adjustment*, and *work and family adjustment* respectively. Table 3 showed items and factor load of each item in extracted factors.

Table 3. Factor load of items

Item	Factors		
	One	Two	Three
1. My problem impairs my ability to do my personal job.		.61	
6. Because of my problem, my leisure time is impaired.		.62	
11. My problem impairs my ability to manage my personal jobs		.66	
2. My problem leads me to low toleration for others		.58	
7. Because of my problem, my social communication is impaired		.64	
12. My problem impairs my close relationship with others.		.52	
3. My problem impairs my academic activities.			.64
8. Because of my problem, my academic motivation is impaired.			.92
13. My problem impairs my academic performance.			.32
4. My problem impairs my ability to do my work	.67		
9. Because of my problem, my interpersonal work communication is impaired.	.78		
14. My problem impairs my working motivation.	.76		
5. Because of my problem, my family communication faced with conflicts	.63		
10. My problem distracts my family communication.	.60		
15. My problem impairs my motivation to apply for home activities	.63		

Personal and social adjustment subscales in initial factor analysis (PC) collect in a common component (personal and inter-personal adjustment). Family adjustment and job adjustment subscales in recent factor analysis (ML) merge in a new component that named work and family adjustment.

The mean correlation between subscales of the MAS was 0.63 and the mean correlation between subscales total score of the MAS was 0.86. Table 4 shows the alpha coefficients for subscales and total score of the MAS.

Table 4. The cornbach's alpha coefficient, descriptive indexes, and subscale- total score correlation for subscales and total score of the MAS

	Subscales			
	Work/family adjustment	Personal/inter-personal adjustment	Academic adjustment	Total score of the MAS adjustment
Alpha coefficient	.90	.86	.87	.92
Correlation with total score	.73	.93	.93	----
Mean	2.46	3.12	2.78	2.79
SD	1.71	1.83	1.51	1.56

Table 5 displays correlation coefficient of the five factors structure (Exploratory method) and the three factors structure (Confirmatory method) for the MAS.

Table 5. Correlation coefficient between exploratory factor analysis and confirmatory factor analysis

Confirmatory factor structure	Exploratory factor structure (Sohrabi and Samani, 2015)				
	personal	social	academic	family	job
Work/family	.56	.62	.69	.90	.84
Academic	.41	.44	1.00	.78	.38
Personal/inter-personal	.90	.92	.47	.53	.63

4. Discussion

The results of the study confirm a three factors structure for the MAS. The study defines a new factor structure for the MAS. Among initial extracted factors just academic adjustment was confirmed. Personal subscale showed common variance with social subscale. Also job subscale was merged with family adjustment subscale.

In sum, the results that the new factor structure has acceptable validity and reliability for research job. To confirm the efficacy of the MAS for clinical situation, there is some need to check other psychometric properties of the MAS.

Appendix A. The Persian form of the multidimensional adjustment scale (P-MAS)

نسخه ی فارسی مقیاس چند بعدی سازگاری

0	1	2	3	4	5	6	7	8
به هیچ وجه		اندکی		به طور قابل ملاحظه ای		شدید		خیلی شدید
مشکلی که برایم پیش آمده، توانایی مرا در انجام کارهای شخصی ام دچار ضعف می کند.								
مشکلی که برایم پیش آمده، فعالیتهای مربوط به اوقات فراغت شخصی مرا ضعیف می کند (گوش دادن به موسیقی، تماشای تلویزیون، مطالعه کردن، پیاده روی، باغبانی کردن).								
مشکلی که برایم پیش آمده، توانایی انجام مدیریت کارهای شخصی ام را در من ضعیف می کند (مرتب کردن اتاقم، نظافت کردن، بی نظمی در کارها).								
مشکلی که برایم پیش آمده، تحمل دیگران را برای سخت می کند (زودرنج شدن، مستعد برای عصبانیت شدن، بی اعتنائی به دیگران).								
مشکلی که برایم پیش آمده فعالیتهای تفریح گروهی مرا دچار ضعف می کند (مهمانی رفتن، پذیرایی از میهمان ها، تفریح با دوستان، بازیهای و فعالیتهای گروهی).								
مشکل که برایم پیش آمده ارتباط صمیمی مرا با دیگران و کسانی که با من زندگی می کنند را ضعیف می کند.								
مشکل که برایم پیش آمده فعالیتهای تحصیلی مرا دچار ضعف می کند (تمرکز برای مطالعه، مدت زمان مطالعه، روش مطالعه، مشارکت در کلاس).								
مشکلی که برایم پیش آمده انگیزه تحصیلی مرا ضعیف می کند (بی حوصلگی هنگام مطالعه، بی رغبتی و کرحتی برای شروع مطالعه، بی میلی در انجام تکالیف درسی).								
مشکلی که برایم پیش آمده، عملکرد تحصیلی مرا ضعیف می کند (پایین آمدن نمرات، ارائه تکالیف ضعیف).								
مشکلی که برایم پیش آمده، انجام امور شغلی ام را ضعیف می کند (ضعف در انجام وظایف شغلی، حضور نامرتب در محیط کار).								
مشکلی که برایم پیش آمده، ارتباط مرا در محیط کار با دیگران ضعیف می کند (با ارباب رجوع، همکاران و مسئولان).								
مشکلی که برایم پیش آمده انگیزه ی مرا برای کارکردن ضعیف می کند (بی رغبتی به محیط کار، بی حوصلگی برای رفتن به سرکار، بی رغبتی به انجام کارها).								
مشکلی که برایم پیش آمده، ارتباط با اعضای خانواده ام را ضعیف می کند (تمایلی به تنهایی، کاهش میزان گفتگو، کاهش حضور در خانه، قهر کردن).								
مشکل که برایم پیش آمده، باعث درگیری با اعضای خانواده ام می شود (آمادگی برای پرخاشگری به اعضای خانواده، زیاد شدن بحث و مجادله با اعضای خانواده).								
مشکل که برایم پیش آمده، انگیزه ام را برای پرداختن به امور مربوط به خانه و خانواده ضعیف می کند (انجام وظایف خانوادگی، توجه به نیاز دیگر اعضای خانواده).								

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