

## **Factor analysis and reliability test results**

Initially, the factorability of the 27 items/questions was examined. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.711, above the commonly recommended value of 0.600. Bartlett's test of sphericity (test of at least one significant correlation between 2 of the items studied) was also significant ( $\chi^2(351) = 2600.175, p < .05$ ).<sup>1</sup> The communalities (proportion of item's variance explained by the extracted factors) were all above 0.300, further confirming that each item shared some common variance with other items. Given these overall indicators, factor analysis was regarded to be suitable with all the 27 items/questions.

PCA for 9 components solution namely lack of willpower/time/energy and skills, fear of injury, lack of time/ lack of energy, environmental barriers, religious barriers, lack of willpower, lack of skills/ social support and lack of resources, explained 13.1%, 11.4%, and 9.2%, 9.0%, 7.2%, 5.1%, 4.3%, 3.8% and 3.6% of the variance respectively.

None of the 27 items were eliminated because they all met a minimum criteria of having a primary factor loading (how much a factor explains a variable) of 0.4 or above. Solutions for the nine components were examined using Oblimin rotation of the factor loading matrix. The factor loading matrix for this final solution is presented in Table 1. All factor loadings were in the same direction of the barrier categories used in the current study where a set of three items instructed a barrier category mainly component 2, 4, 5, 6, and 9 representing fear from injury, environmental barriers, religious barriers, lack of willpower, and lack of resources respectively. However, cross contributions were evident in four out of the nine extracted components namely component 1 (lack of willpower, time, energy and skills), component 3 (lack of time and energy), component 7 (lack of social support and skills), and component 8 (lack of social support and energy). Component correlation matrix, presented in table 2, shows weak correlations between the extracted nine components  $<0.200$  except for the correlations of

0.201 and -0.204 between component 6 (lack of willpower) with 7 (combination of lack of skills and social support) and 2 (fear of injury) with 9 (lack of resources) respectively.

McDonald's coefficient Omega was equal to 0.750 indicating moderate reliability of the 27 items/questions scale.<sup>2</sup>

**Table 1: The extracted components and factor loadings based on a principal components analysis with Oblimin rotation for the 27 items/questions used in the current study (N = 305)**

Items/ questions	Extracted components (1-9)*								
	1	2	3	4	5	6	7	8	9
Q4	.503					-.502			
Q19		.879							
Q12		.801							
Q5		.791							
Q1			.745						
Q15			.743						
Q17			.721						
Q3	.351		.604						
Q8	-.423		.468						
Q24				.922					
Q26				.909					
Q22				.839					
Q25					.899				
Q23					.871				
Q27					.777				
Q20						-.788			
Q11									
Q18						-.748			
Q16							-.789		
Q13							-.712		
Q6	.470						-.538		
Q2							-.390		

Q9								.819	
Q10	.383							.622	
Q14									.802
Q7									.765
Q21									.761

\*1=lack of willpower/energy/time/skills, 2=fear of injury, 3=lack of time/ lack of energy, 4=environmental barriers, 5=religious barriers, 6=lack of willpower, 7=lack of skills/ social support, 8=lack of energy/social support and 9=lack of resources.

**Table 2: Component correlation matrix**

Extracted components*	1	2	3	4	5	6	7	8	9
1	1.000	-.008	.017	.028	-.046	-.151	-.049	.020	.149
2	-.008	1.000	-.099	-.023	.025	-.028	-.199	.000	-.204
3	.017	-.099	1.000	.063	-.117	-.127	-.043	.145	.009
4	.028	-.023	.063	1.000	.014	.004	-.016	.051	.019
5	-.046	.025	-.117	.014	1.000	.062	-.014	-.034	-.021
6	-.151	-.028	-.127	.004	.062	1.000	.207	-.153	-.125
7	-.049	-.199	-.043	-.016	-.014	.207	1.000	-.134	-.009
8	.020	.000	.145	.051	-.034	-.153	-.134	1.000	.014
9	.149	-.204	.009	.019	-.021	-.125	-.009	.014	1.000

\*1=lack of willpower/energy/time/skills, 2=fear of injury, 3=lack of time/ lack of energy, 4=environmental barriers, 5=religious barriers, 6=lack of willpower, 7=lack of skills/ social support, 8=lack of energy/social support and 9=lack of resources.

Further Factor analysis and reliability tests were conducted on the studied barrier subscales (3 questions per barrier). Table 3 provide factor loadings and McDonald's coefficient Omega for all the nine subscales used in the current study indicating excellent sub-scale quality.

**Table 3: Factor loadings and McDonald's coefficient Omega for the study subscales**

Barrier categories	Items/questions	factor loadings	Omega
Lack of time	Q15	0.826	0.900
	Q1	0.798	
	Q8	0.618	
Lack of social support	Q16	0.734	0.900
	Q2	0.680	
	Q9	0.534	
Lack of energy	Q3	0.755	0.900
	Q17	0.720	
	Q10	0.581	
Lack of willpower	Q18	0.837	0.900
	Q4	0.746	
	Q11	0.691	

Fear of injury	Q19	0.904	0.900
	Q12	0.823	
	Q5	0.803	
Lack of skills	Q6	0.840	0.900
	Q13	0.646	
	Q20	0.560	
Lack of resources	Q7	0.837	0.900
	Q21	0.831	
	Q14	0.754	
Religious barriers	Q25	0.905	0.900
	Q23	0.872	
	Q27	0.786	
Environmental barriers	Q24	0.924	0.900
	Q26	0.913	
	Q22	0.847	

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2. Dunn TJ, Baguley T, Brunnsden V. From alpha to omega: a practical solution to the pervasive problem of internal consistency estimation. *British journal of psychology (London, England : 1953)* 2014;105(3):399-412. doi: 10.1111/bjop.12046 [published Online First: 2014/05/23]