Academicia Globe:
Inderscience Research

ISSN: 2776-1010 Volume 3, Issue 11, Nov., 2022

UNIVERSITY STUDENTS' DISTRIBUTION ACCORDING TO THEIR STAGES OF CHANGE TO ADOPT HEALTHY DIET: DOES THE SELF-EFFICACY MATTER?

Amjad Salman kadhem,
Community Health Nursing Department,
College of Nursing - University of Baghdad
Corresponding Author Mail : amjed3322@gmail.com

Mohammed Baqer Habeeb Abd Ali
Community Health Nursing Department,
College of Nursing - University of Baghdad

Abstract

Study Objectives: This study aims to develop and test the psychometric properties of the Transtheoretical Model of Change Scales to Adopt Healthy Diet.

Design: A methodological design was used to guide this study.

Setting: This study was carried out in Al-Muthanna University.
Sample and Sampling: The study included a simple random sample of 560 undergraduate students who were recruited from six colleges in Al-Muthanna University.
Data Collection: Data were collected using a self-reported instrument.
Data Analyses: Data were analyzed using the statistical package for social science for windows, version 26. The exploratory factor analysis and principal component analysis were used. Furthermore, the confirmatory factor analysis with AMOS was used.
Study Results: The study results yielded the Stages of Change Scale to Adopt Healthy Diet (Short Form), the Stages of Change Scale to Adopt Healthy Diet (Continuous Form), the Processes of Change Scale to Adopt Healthy Diet, and the Decisional Balance Scale to Adopt Healthy Diet. All these scales demonstrated excellent content validity and very good internal consistency reliability.
Conclusions: The Stages of Change Scale to Adopt Healthy Diet (Continuous Form), the Processes of Change Scale to Adopt Healthy Diet, and the Decisional Balance Scale to Adopt Healthy Diet are considered reliable measures that can be used in future research.
next intervention studies can use experimental manipulation to test the construct validity of these scales, with Contrary to participants in the control group, those allocated to the intervention condition were anticipated to have enhanced valuation of the Pros, decreased concern about the Cons, and increased self-efficacy.
In addition to extending the existing study to develop and test whole TTM strategies for management and prevention, additional research is required to improve the current measurements.

Academicia Globe:
Inderscience Research

ISSN: 2776-1010 Volume 3, Issue 11, Nov., 2022

Introduction

The nutrients that are swallowed and absorbed are crucial for the growth, upkeep, replacement, and repair of the trillions of cells that make up the organs and tissues that carry out the body's functions in the intricate, beautiful system known as the human body. These nutrients can be found in the meals and drinks we consume. The relationship between the foods we consume—our diets—and the methods by which our bodies utilize, digest, and get nourishment from the nutrients in those meals is nutrition. Even though human bodies are remarkably adaptive and can survive for a long time on inadequate or inappropriate food, optimal health depends on optimum nutrition. When nutrients aren't present in sufficient amounts, aren't balanced, or otherwise (Allman et al, 2010).

As Juengst (1992) warns us, Eating is a ritual that gives comfort, contentment, enjoyment, creativity, sustenance, nurture, appreciation, and healing. It is a communal activity that includes sharing, celebration, learning from one another, and helping the weak. It fulfills a variety of human needs, (p. 15)

While the necessity for food to support life and strengthen social ties has existed since the dawn of civilization, the two separate but concurrent institutions serving older Americans have quite different perspectives on food and nutrition. Food is often viewed as nurturing in the social service system, which includes the aging network, emphasizing the emotional, social, and quality-of-life components of eating. Historically, the healthcare system has prioritized nutrition and diet as a therapeutic therapy for chronic diseases, and more recently, it has begun to emphasize (Wellman & Johnson, 2004).

Methodology:

Study Design

This study's methodology was guided by a methodological design. The Transtheoretical Model of Change Scales to Adopt Healthy Diet were developed by the student researcher (SR) in accordance with DeVillis' (2016) criteria.

The Setting of the Study

The study was carried out at Al-Muthanna University. The study participants were recruited from six colleges in this university which are the College of Arts, College of Law, College of Education, College of Basic Education, College of Administration and Economics, and College of Science (Chemistry and Mathematics).

Sample and Sampling

(five –hundred and sixty) students enrolled in the aforementioned colleges were selected as a probability simple random sample. The most fundamental technique for probability sampling is simple random sampling. Elements are randomly chosen from the sampling frame to create basic random sampling (Gray et al., 2017).

Academicia Globe:
Inderscience Research

ISSN: 2776-1010 Volume 3, Issue 11, Nov., 2022

The Study Instrument

The study tool is made up of the socio-demographic information of the students, including their age, gender, college, grade, living situation, marital status, place of residence, level of education, and household socioeconomic status, as determined by the Family's Socioeconomic Status Scale, which was adapted from Shaikh and Pathak (2017). The overall score so goes from 4 to 40. The resulted score of 34-40 is categorized as upper class, the result of 21-33 as upper middle class, the result of 15-20 as lower middle class, and the result of 6-14 as lower class (Raymond & Morrow, 2020).

Statistical Analyses

The data were analyzed using the statistical package for social sciences (SPSS) for Windows, version 26, Chicago, IL, and AMOS. The sociodemographic characteristics of the individuals were expressed using the descriptive statistical measures of frequency, percent, mean, and standard deviation. The exploratory factor analysis and principal component analysis were employed as part of the factor analysis measurement. Additionally, confirmatory factor analysis was applied.

Ethical Considerations

The student researcher spoke with administrators at the University of Al-Muthanna about the study's specifics after gaining approval from the College of Nursing, University of Baghdad. Before the research data was gathered, 60 students who satisfied the inclusion criteria were asked to complete a pilot survey. This pilot study was carried out to look into survey readability and calculate the survey completion time. Before the data collection started, the instrument and procedure needed to be changed based on feedback. To ensure that they understand that participation is optional and that they can withdraw at any moment, the overall goal of the study and how to complete the questionnaire were communicated to the participants. The researcher gave participants assurances.

Result of the study

Table 1. Participants' sociodemographic characteristics (N = 560)

Variable	Frequency	Percent
Age (Years)		
18-21	323	57.7
22-25	170	30.4
26-28	67	11.9
Mean (SD): 21.39 ± 2.19		
Ender		
Male	203	36.3
Female	357	63.7
Marital Status		
Not married	426	76.1
Married	119	21.2
Divorced	7	1.3
Separated	5	0.9
Widow/widower	3	0.5

Academicia Globe:
Inderscience Research

ISSN: 2776-1010 Volume 3, Issue 11, Nov., 2022

Grade		
First	182	32.5
Second	223	39.8
Third	67	12.0
Fourth	85	15.2
Fifth	3	0.5
Living Arrangement		
Live with parents	452	80.7
Live with mother	49	8.8
Live with father	12	2.1
Live with relatives	41	7.3
Live with friends	6	1.1
Residency		
Urban	280	50.0
Suburban	143	25.5
Rural	137	24.5

The study results reveal that the mean age is 21.39 ± 2.19; more than a half age 18-21-years (n = 323; 57.7%), followed by those who age 22-25-years (n = 170; 30.4%), and those who age 26-28-years (n = 67; 11.9%).concerning the participants' gender, most are females (n = 357; 63.7%) compared to males (n = 203; 36.3%).

Regarding the marital status, most are not married (n = 426; 76.1%), followed by those who are married (n = 119; 21.2%), those who are divorced (n = 7; 1.3%), those who are separated (n = 5; 0.9%), and those who are widow/widowers (n = 3; 0.5%). With respect to the grade, around two-fifth are second graders (n = 223; 39.8%), followed by those who are first graders (n = 182; 32.5%), those who are fourth graders (n = 85; 15.2%), those who are third graders (n = 67; 12.0%), and those who are fifth graders (n = 3; 0.5%).

As per the living arrangements, the majority reported that they have been living with parents (n = 452; 80.7%), followed by those who have been living with their mother (n = 49; 8.8%), those who have been living with their relatives (n = 41; 7.3%), those who have been living with their father (n = 12; 2.1%), and those who have been living with their friends (n = 6; 1.1%). Concerning the residency, a half reported that they have been living in urban areas (n = 280; 50.0%), followed by those who have been living in suburban areas (n = 143; 25.5%), and those who have been living in rural areas (n = 137; 24.5%).

Academicia Globe:
Inderscience Research

ISSN: 2776-1010 Volume 3, Issue 11, Nov., 2022

Table 2. Total variance explained for the Stages of Change (Continuous measure) to adopt healthy diet

Total Variance Explained							
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.548	23.115	23.115	5.548	23.115	23.115	3.603
2	1.941	8.087	31.201	1.941	8.087	31.201	1.881
3	1.657	6.905	38.106	1.657	6.905	38.106	2.572
4	1.195	4.980	43.086	1.195	4.980	43.086	2.163
5	1.128	4.701	47.787	1.128	4.701	47.787	2.835
6	1.102	4.591	52.378	1.102	4.591	52.378	1.495
7	1.011	4.213	56.591	1.011	4.213	56.591	2.868
8	.937	3.905	60.496				
9	.887	3.695	64.191				
10	.868	3.617	67.808				
11	.752	3.131	70.939				
12	.707	2.946	73.885				
13	.682	2.840	76.725				
14	.664	2.766	79.491				
15	.624	2.600	82.091				
16	.603	2.511	84.602				
17	.574	2.392	86.994				
18	.541	2.253	89.248				
19	.508	2.117	91.365				
20	.476	1.982	93.347				
21	.466	1.943	95.290				
22	.427	1.778	97.068				
23	.408	1.701	98.769				
24	.295	1.231	100.000				

Component Initial Eigenvalues Extraction Sums of Squared Loadings Rotation Sums of Squared Loadingsa

Academicia Globe:
Inderscience Research

ISSN: 2776-1010 Volume 3, Issue 11, Nov., 2022

Extraction Method: Principal Component Analysis.
a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.
The study results demonstrate that seven factors accounted for 56.592% variance within the construct is by Stages of Change (Continuous measure) factor. All items meet the threshold at which factor loadings (pattern coefficients for oblique rotations) are considered meaningful

Table 3. Item total statistics for the Stages of Change Scale (Continuous measure) to adopt healthy diet

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
SOC1	68.58	159.883	.239	.186	.843
SOC2	67.81	157.409	.354	.225	.838
SOC3	68.50	160.894	.215	.269	.844
SOC4	67.94	154.797	.440	.337	.835
SOC5	67.86	154.235	.440	.336	.835
SOC6	68.40	163.332	.123	.262	.848
SOC7	67.82	155.510	.410	.279	.836
SOC8	68.01	154.179	.487	.382	.833
SOC9	68.04	157.213	.387	.265	.837
SOC10	68.08	153.454	.485	.375	.833
SOC11	68.24	159.167	.308	.220	.840
SOC12	68.07	156.090	.425	.356	.836
SOC13	67.98	155.007	.460	.296	.834
SOC14	68.08	154.350	.484	.330	.833
SOC15	67.93	155.607	.453	.392	.835
SOC16	68.00	154.469	.481	.312	.834
SOC17	68.04	155.452	.440	.411	.835
SOC18	68.08	154.860	.470	.384	.834
SOC19	67.95	157.152	.365	.318	.838
SOC20	67.99	153.583	.484	.351	.833
SOC21	67.93	158.183	.327	.308	.839
SOC22	67.80	155.461	.415	.363	.836
SOC23	67.90	154.576	.466	.322	.834
SOC24	67.97	157.777	.317	.256	.840

The study results exhibit that all items of the Stages of Change Scale (continuous measure) to adopt healthy diet displayed a very good internal consistency reliability (Cronbach's alpha = Minimum = .833, Maximum = .848).

Academicia Globe:
Inderscience Research

ISSN: 2776-1010 Volume 3, Issue 11, Nov., 2022

Table 4. Total variance explained for the Stages of Change to adopt healthy diet

Total Variance Explained							
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	6.483	21.608	21.608	6.483	21.608	21.608	3.319
2	2.594	8.647	30.255	2.594	8.647	30.255	3.103
3	1.710	5.699	35.954	1.710	5.699	35.954	2.719
4	1.646	5.485	41.440	1.646	5.485	41.440	2.427
5	1.384	4.615	46.054	1.384	4.615	46.054	2.961
6	1.303	4.345	50.399	1.303	4.345	50.399	2.961
7	1.194	3.979	54.378	1.194	3.979	54.378	2.310
8	1.078	3.594	57.972	1.078	3.594	57.972	2.411
9	1.044	3.480	61.452	1.044	3.480	61.452	1.956
10	.974	3.246	64.698				
11	.889	2.963	67.660				
12	.814	2.714	70.374				
13	.781	2.605	72.979				
14	.752	2.508	75.487				
15	.713	2.377	77.864				
16	.676	2.254	80.117				
17	.617	2.057	82.174				
18	.610	2.034	84.208				
19	.549	1.831	86.039				
20	.523	1.745	87.784				
21	.494	1.647	89.431				
22	.485	1.616	91.047				
23	.426	1.421	92.468				
24	.416	1.388	93.856				
25	.384	1.280	95.136				
26	.339	1.131	96.267				
27	.306	1.020	97.287				
28	.292	.973	98.260				
29	.275	.917	99.177				
30	.247	.823	100.000				

Academicia Globe:
Inderscience Research

ISSN: 2776-1010 Volume 3, Issue 11, Nov., 2022

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

The study results demonstrate that seven factors accounted for 61.452% variance within the construct is by Processes of Change factor. All items meet the threshold at which factor loadings (pattern coefficients for oblique rotations) are considered meaningful.

Table 5. Correlation matrix a for the Self-Efficacy Scale to adopt healthy diet

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Correlation	PosAff1	-																		
	PosAff2	.455	-																	
	PosAff3	.308	.300	-																
	PosAff4	.298	.426	.540	-															
	NegAff1	.178	.217	.434	.372	-														
	NegAff2	.105	.110	.303	.294	.659	-													
	NegAff3	.199	.237	.368	.233	.553	.579	-												
	NegAff4	.188	.191	.259	.257	.465	.612	.565	-											
	Habit1	.190	.156	.205	.163	.352	.364	.368	.403	-										
	Habit2	.064	.172	.195	.149	.271	.386	.288	.357	.445	-									
	Habit3	.141	.087	.116	.237	.250	.341	.321	.359	.503	.490	-								
	Habit4	.128	.151	.271	.242	.272	.315	.279	.290	.399	.481	.486	-							
	Habit5	.080	.086	.206	.237	.268	.312	.310	.296	.379	.250	.375	.481	-						
	SocialCues1	.216	.206	.249	.107	.158	.154	.204	.079	.138	.244	.155	.250	.193	-					
	SocialCues2	.126	.159	.194	.103	.127	.125	.237	.173	.165	.231	.143	.259	.262	.587	-				
	SocialCues3	.174	.178	.173	.077	.169	.185	.189	.118	.214	.280	.238	.343	.129	.492	.420	-			
	SocialCues4	.097	.130	.136	.133	.020	.090	.155	.131	.093	.162	.167	.135	.198	.274	.452	.310	-		
	SocialCues5	.200	.229	.219	.164	.060	.084	.083	.031	.223	.148	.088	.181	.132	.223	.185	.334	.329	-	
	SocialCues6	.149	.154	.208	.098	.044	.032	.180	.090	.097	.064	.091	.232	.259	.289	.369	.347	.499	.329	-
	Pos Aff1		.000	.000	.000	.000	.006	.000	.000	.000	.066	.000	.001	.030	.000	.001	.000	.011	.000	.000
	Pos Aff2	.000		.000	.000	.000	.005	.000	.000	.000	.000	.020	.000	.021	.000	.000	.000	.001	.000	.000
	Pos Aff3	.000	.000		.000	.000	.000	.000	.000	.000	.000	.003	.000	.000	.000	.000	.000	.001	.000	.000
	Pos Aff4	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.006	.008	.033	.001	.000	.010
	Neg Aff1	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.000	.321	.077	.148

Academicia Globe:
Inderscience Research

ISSN: 2776-1010 Volume 3, Issue 11, Nov., 2022

	Neg Aff2	.006	.005	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.001	.000	.016	.024	.228
	Neg Aff3	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.025	.000
	Neg Aff4	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.032	.000	.003	.001	.235	.016
	Habit1	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.001	.000	.000	.014	.000	.011
	Habit2	.066	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.064
	Habit3	.000	.020	.003	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.019	.016
	Habit4	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.001	.000	.000
	Habit5	.030	.021	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000	.001	.000	.001	.000
	Social Cues1	.000	.000	.000	.006	.000	.000	.000	.032	.001	.000	.000	.000	.000		.000	.000	.000	.000	.000
	Social Cues2	.001	.000	.000	.008	.001	.001	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000
	Social Cues3	.000	.000	.000	.033	.000	.000	.000	.003	.000	.000	.000	.000	.001	.000	.000		.000	.000	.000
	Social Cues4	.011	.001	.001	.001	.321	.016	.000	.001	.014	.000	.000	.001	.000	.000	.000	.000		.000	.000
	Social Cues5	.000	.000	.000	.000	.077	.024	.025	.235	.000	.000	.019	.000	.001	.000	.000	.000	.000		.000
	Social Cues6	.000	.000	.000	.010	.148	.228	.000	.016	.011	.064	.016	.000	.000	.000	.000	.000	.000	.000	

a. Determinant = .001 .The study results display that all items of the Self-Efficacy Scale to adopt healthy diet yielded satisfactory inter-correlation from the correlation matrix (Determinant = .001).

Table 6. Kaiser-Meyer-Olkin (KMO) for the Self-Efficacy Scale to adopt healthy diet

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.827
Bartlett's Test of Sphericity	Approx. Chi-Square	3803.036
	df	171
	Sig.	.000

The study results exhibit that the Self-Efficacy Scale to adopt healthy diet demonstrates indicates an acceptable sampling adequacy (KMO = .827). The Bartlett's test of sphericity implies that we have to reject the null hypothesis that this is an identity matrix in that the principal components analysis should be conducted.

Academicia Globe:
Inderscience Research

ISSN: 2776-1010 Volume 3, Issue 11, Nov., 2022

Table 7. Anti-image Covariance for the Self-Efficacy Scale to adopt healthy diet

		Pos Aff 1	Pos Aff 2	Pos Aff 3	Pos Aff 4	Neg Aff 1	Neg Aff 2	Neg Aff 3	Neg Aff 4	Habit 1	Habit 2	Habit 3	Habit 4	Habit 5	Social Cues 1	Social Cues 2	Social Cues 3	Social Cues 4	Social Cues 5	Social Cues 6
Anti-image Covariance	Pos Aff 1	.714	-.225	-.080	-.025	.005	.024	-.003	-.053	-.055	.084	-.052	.008	.035	-.068	.023	-.019	.016	-.040	-.016
	Pos Aff 2	-.225	.640	.040	-.192	-.027	.072	-.073	-.030	-.004	-.083	.072	.000	.030	-.032	.002	-.019	.006	-.066	-.014
	Pos Aff 3	-.080	.040	.557	-.233	-.093	.026	-.085	.005	-.009	-.039	.093	-.053	.020	-.060	.004	.020	.013	-.055	-.054
	Pos Aff 4	-.025	-.192	-.233	.548	-.056	-.043	.078	-.013	.056	.053	-.105	-.018	-.055	.038	-.003	.042	-.043	-.020	.036
	Neg Aff 1	.005	-.027	-.093	-.056	.455	-.179	-.095	.005	-.062	.018	.025	.001	-.009	-.001	-.001	-.031	.047	.041	.014
	Neg Aff 2	.024	.072	.026	-.043	-.179	.391	-.093	-.151	.017	-.068	.000	-.006	-.034	-.030	.043	-.028	-.018	-.035	.047
	Neg Aff 3	-.003	-.073	-.085	.078	-.095	-.093	.495	-.122	-.028	.030	-.052	.019	-.026	-.007	-.035	.011	-.007	.032	-.049
	Neg Aff 4	-.053	-.030	.005	-.013	.005	-.151	-.122	.504	-.066	-.044	-.027	.000	-.009	.069	-.046	.026	-.021	.061	-.013
	Habit 1	-.055	-.004	-.009	.056	-.062	.017	-.028	-.066	.578	-.100	-.149	-.015	-.101	.036	-.018	-.011	.048	-.125	.022
	Habit 2	.084	-.083	-.039	.053	.018	-.068	.030	-.044	-.100	.575	-.131	-.139	.059	-.044	-.023	-.018	-.041	-.011	.067
	Habit 3	-.052	.072	.093	-.105	.025	.000	-.052	-.027	-.149	-.131	.542	-.114	-.057	-.016	.053	-.046	-.063	.056	.027
	Habit 4	.008	.000	-.053	-.018	.001	-.006	.019	.000	-.015	-.139	-.114	.540	-.180	.013	-.024	-.100	.078	-.010	-.061
	Habit 5	.035	.030	.020	-.055	-.009	-.034	-.026	-.009	-.101	.059	-.057	-.180	.636	-.028	-.055	.101	-.022	-.002	-.091
	Social Cues 1	-.068	-.032	-.060	.038	-.001	-.030	-.007	.069	.036	-.044	-.016	.013	-.028	.542	-.237	-.153	.033	-.014	-.010
	Social Cues 2	.023	.002	.004	-.003	-.001	.043	-.035	-.046	-.018	-.023	.053	-.024	-.055	-.237	.521	-.065	-.164	.051	-.033
	Social Cues 3	-.019	-.019	.020	.042	-.031	-.028	.011	.026	-.011	-.018	-.046	-.100	.101	-.153	-.065	.604	-.032	-.115	-.086
	Social Cues 4	.016	.006	.013	-.043	.047	-.018	-.007	-.021	.048	-.041	-.063	.078	-.022	.033	-.164	-.032	.607	-.126	-.213
	Social Cues 5	-.040	-.066	-.055	-.020	.041	-.035	.032	.061	-.125	-.011	.056	-.010	-.002	-.014	.051	-.115	-.126	.731	-.091
	Social Cues 6	-.016	-.014	-.054	.036	.014	.047	-.049	-.013	.022	.067	.027	-.061	-.091	-.010	-.033	-.086	-.213	-.091	.623
Anti-	Pos Aff 1	.798[a]	-.333	-.127	-.040	.009	.046	-.005	-.089	-.085	.132	-.084	.013	.052	-.109	.038	-.028	.025	-.056	-.025

Academicia Globe:
Inderscience Research

ISSN: 2776-1010 Volume 3, Issue 11, Nov., 2022

	Pos Aff 2	-.333	.745[a]	.068	-.324	-.049	.144	-.129	-.053	-.007	-.136	.123	-.001	.048	-.055	.003	-.030	.009	-.097	-.021
	Pos Aff 3	-.127	.068	.807[a]	-.422	-.186	.056	-.162	.010	-.016	-.070	.169	-.097	.034	-.109	.008	.034	.023	-.086	-.091
	Pos Aff 4	-.040	-.324	-.422	.745[a]	-.111	-.092	.149	-.024	.100	.094	-.193	-.033	-.093	.069	-.006	.073	-.074	-.031	.062
	Neg Aff 1	.009	-.049	-.186	-.111	.858[a]	-.424	-.199	.010	-.120	.035	.050	.003	-.017	-.001	-.002	-.060	.090	.071	.027
	Neg Aff 2	.046	.144	.056	-.092	-.424	.824[a]	-.211	-.341	.036	-.143	.001	-.012	-.067	-.065	.096	-.058	-.036	-.066	.095
	Neg Aff 3	-.005	-.129	-.162	.149	-.199	-.211	.888[a]	-.244	-.053	.056	-.101	.036	-.046	-.014	-.069	.020	-.013	.054	-.089
	Neg Aff 4	-.089	-.053	.010	-.024	.010	-.341	-.244	.876[a]	-.122	-.081	-.051	.001	-.015	.132	-.090	.047	-.038	.101	-.023
	Habit 1	-.085	-.007	-.016	.100	-.120	.036	-.053	-.122	.874[a]	-.173	-.266	-.026	-.167	.065	-.033	-.019	.081	-.192	.037
	Habit 2	.132	-.136	-.070	.094	.035	-.143	.056	-.081	-.173	.851[a]	-.235	-.249	.097	-.078	-.043	-.031	-.069	-.017	.112
	Habit 3	-.084	.123	.169	-.193	.050	.001	-.101	-.051	-.266	-.235	.825[a]	-.210	-.098	-.029	.100	-.081	-.110	.090	.047
	Habit 4	.013	-.001	-.097	-.033	.003	-.012	.036	.001	-.026	-.249	-.210	.861[a]	-.307	.023	-.046	-.174	.136	-.015	-.106
	Habit 5	.052	.048	.034	-.093	-.017	-.067	-.046	-.015	-.167	.097	-.098	-.307	.853[a]	-.048	-.096	.163	-.035	-.002	-.144
	Social Cues 1	-.109	-.055	-.109	.069	-.001	-.065	-.014	.132	.065	-.078	-.029	.023	-.048	.786[a]	-.447	-.268	.058	-.022	-.018
	Social Cues 2	.038	.003	.008	-.006	-.002	.096	-.069	-.090	-.033	-.043	.100	-.046	-.096	-.447	.790[a]	-.115	-.292	.083	-.057
	Social Cues 3	-.028	-.030	.034	.073	-.060	-.058	.020	.047	-.019	-.031	-.081	-.174	.163	-.268	-.115	.852[a]	-.052	-.174	-.140
	Social Cues 4	.025	.009	.023	-.074	.090	-.036	-.013	-.038	.081	-.069	-.110	.136	-.035	.058	-.292	-.052	.758[a]	-.189	-.346
	Social Cues 5	-.056	-.097	-.086	-.031	.071	-.066	.054	.101	-.192	-.017	.090	-.015	-.002	-.022	.083	-.174	-.189	.802[a]	-.135
	Social Cues 6	-.025	-.021	-.091	.062	.027	.095	-.089	-.023	.037	.112	.047	-.106	-.144	-.018	-.057	-.140	-.346	-.135	.803[a]

The KMO value for each variable in the Self-Efficacy Scale to adopt healthy diet ranges from .391 to .736, so the overall KMO value is a fair representation of the data.

Academicia Globe:
Inderscience Research

ISSN: 2776-1010 Volume 3, Issue 11, Nov., 2022

Table 8. Total variance explained for the Self-Efficacy Scale to adopt healthy diet

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.473	28.808	28.808	5.473	28.808	28.808	3.698
2	2.307	12.140	40.947	2.307	12.140	40.947	2.537
3	1.713	9.017	49.964	1.713	9.017	49.964	2.732
4	1.205	6.341	56.306	1.205	6.341	56.306	3.755
5	1.040	5.471	61.777	1.040	5.471	61.777	2.415
6	.919	4.835	66.612				
7	.840	4.423	71.035				
8	.737	3.881	74.916				
9	.619	3.258	78.174				
10	.590	3.104	81.278				
11	.555	2.924	84.202				
12	.497	2.615	86.816				
13	.445	2.341	89.158				
14	.435	2.289	91.447				
15	.399	2.101	93.548				
16	.370	1.947	95.495				
17	.317	1.669	97.163				
18	.290	1.524	98.688				
19	.249	1.312	100.000				

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

The study results demonstrate that seven factors accounted for 61.777% variance within the construct is by Self-Efficacy Scale factor. All items meet the threshold at which factor loadings (pattern coefficients for oblique rotations) are considered meaningful

Academicia Globe:
Inderscience Research

ISSN: 2776-1010 Volume 3, Issue 11, Nov., 2022

Table 9. Pattern matrix a for principal axis factor extraction for EFA for the Self-Efficacy Scale to adopt healthy diet

	Component				
	1	2	3	4	5
Habit 3	.814	-.026	-.017	-.017	.032
Habit 4	.719	.115	.054	.011	-.055
Habit 2	.697	-.178	-.012	-.080	-.242
Habit 1	.696	-.040	.068	-.117	.025
Habit 5	.474	.442	-.086	-.171	.207
Social Cues 6	-.057	.790	.020	.013	-.124
Social Cues 4	-.040	.741	-.062	-.024	-.185
Social Cues 5	.176	.419	.333	.245	-.073
Pos Aff 2	.016	-.070	.776	.018	-.100
Pos Aff 1	.038	-.109	.737	.049	-.120
Pos Aff 4	.044	.146	.656	-.222	.263
Pos Aff 3	-.105	.171	.537	-.382	.025
Neg Aff 2	.129	-.054	-.058	-.813	-.045
Neg Aff 1	-.012	-.089	.156	-.792	-.034
Neg Aff 3	.011	.075	.025	-.773	-.105
Neg Aff 4	.177	.008	-.015	-.697	.027
Social Cues1	.002	.036	.101	-.086	-.801
Social Cues3	.206	.085	.069	.031	-.675
Social Cues2	-.033	.322	-.079	-.163	-.659

a. Rotation converged in 11 iterations.

The study results reveal that the pattern matrix yielded five factors where all communality estimates of all items were legitimate.

Academicia Globe:
Inderscience Research

ISSN: 2776-1010 Volume 3, Issue 11, Nov., 2022

Table 10. Model fit index

Model (No. of items)	χ^2	df	CFI	TLI	NFI	RMSEA	PCLOSE
19	724.992	146	.843	.816	.812	.084	.000

Table 11. Reliability statistics for the Self-Efficacy Scale to adopt healthy diet

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
.859	.859	19

The study results exhibit that the Self-Efficacy Scale to adopt healthy diet displayed a very good internal consistency reliability (Cronbach's alpha = .859).

Table12. Item total statistics for the Self-Efficacy Scale to adopt healthy diet

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
PosAff1	46.09	124.068	.338	.286	.857
PosAff2	45.85	124.270	.378	.360	.855
PosAff3	46.20	119.918	.491	.443	.850
PosAff4	46.03	122.808	.432	.452	.853
NegAff1	46.48	119.456	.515	.545	.849
NegAff2	46.18	119.044	.536	.609	.848
NegAff3	46.23	117.445	.568	.505	.847
NegAff4	46.15	119.561	.513	.496	.849
Habit1	46.46	120.903	.510	.422	.850
Habit2	46.37	121.689	.486	.425	.851
Habit3	46.34	121.521	.476	.458	.851
Habit4	46.23	120.248	.544	.460	.848
Habit5	46.09	120.731	.463	.364	.852
SocialCues1	46.52	121.939	.435	.458	.853
SocialCues2	46.28	122.185	.448	.479	.852
SocialCues3	46.27	122.129	.453	.396	.852
SocialCues4	46.12	124.183	.361	.393	.856
SocialCues5	46.01	124.111	.330	.269	.857
SocialCues6	46.17	123.683	.364	.377	.856

Academicia Globe:
Inderscience Research

ISSN: 2776-1010 Volume 3, Issue 11, Nov., 2022

The study results exhibit that all items of the Self-Efficacy Scale to adopt healthy diet displayed a very good internal consistency reliability (Cronbach's alpha = Minimum = .847, Maximum = .857).

Table 13. Intraclass correlation coefficient of the Self-Efficacy Scale to adopt healthy diet

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.242[a]	.218	.269	7.071	559	10062	.000
Average Measures	.859[c]	.841	.875	7.071	559	10062	.000

Two-way mixed effects model where people effects are random and measures effects are fixed.
a. The estimator is the same, whether the interaction effect is present or not.
b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.
c. This estimate is computed assuming the interaction effect is absent, because it is not estimable otherwise.

The study results demonstrate that the interclass correlation for the Self-Efficacy Scale to adopt healthy diet is statistically significant (p-value = .000).

Discussion :

The findings of the current study have significant theoretical and practical ramifications for how adopting a balanced diet might help prevent a variety of illnesses and health issues while also enhancing people's health. As a result, people's inclinations toward different dietary patterns have changed recently. To put these behaviors into practice, people frequently need to make challenging modifications to the way they select and prepare their food. People vary in their preparedness and efficacy to adopt good eating habits that can help them avoid diseases and health issues while also improving their overall health for a variety of reasons.

Healthy eating habits that have the potential to prevent diseases and health issues and improve health will be less likely to be adopted by those who are not ready to take action. This difference in people's readiness to alter their behavior points to the urgent need for programs to be created that are specifically catered to readiness to increase efficacy and reach. The Transtheoretical Model of Behavior Change is one theory that can guide the development of multilevel, population-based, intervention and prevention programs that are tailored to the level of readiness. An important benefit of successfully applying the TTM to a behavior content area is the development of interventions that are appropriate for the entire population, independent of the level of preparedness. Additionally, methods created to gauge TTM components.

Stage of Change Measures

The Stage of Change assessments for adopting a healthy diet reflects a person's willingness to start (or keep starting) particular habits that are thought to aid in weight loss. This strategy is an expansion of the TTM's more sophisticated behavioral applications that target numerous behaviors and

ISSN: 2776-1010 Volume 3, Issue 11, Nov., 2022

call for interpersonal communication (1) addresses appropriate eating habits that reduce people's risk of contracting a variety of diseases and/or health issues whose causes include dietary, including (2) indicates a complicated behavioral target that requires a person to readily engage in several "marker" behaviors as opposed to stopping one behavior (such as weight management) or refraining from negative behaviors (such as excessive screen time). Both of these characteristics make the work of establishing measurements more challenging because it is challenging to develop staging algorithms for this particular behavior. To deal with these complications, the URICA continuous staging method, a one-item categorical staging algorithm, and a three-item categorical algorithm were created and evaluated. The objectives were to discover which strategy best captured the data and to better understand the nature of willingness to engage in the marker behaviors. This study explicitly examined whether a three-item algorithm performed better than a relatively simple one-item approach.

URICA Continuous Staging.

The URICA, a continuous tool for assessing readiness for behavior change, can be used to find patterns in scores on a number of criteria that correlate to several Stages of Change. In previously developed URICA assessment tools, Precontemplation, Contemplation, Action, and Relapse are all represented by one of four related components or dimensions. The URICA items, which assess a person's readiness to adopt a healthy diet, were developed using these four criteria. Exploratory and confirmatory assessments of the items developed for URICA staging in the current study resulted in a seven-factor, correlated model with an unchanging number of questions per factor. These results corroborated theories developed from earlier applications of the URICA staging in other behavioral domains.

The confirmatory factor model's overall fit and reliability were satisfactory, notwithstanding a few items with low factor loadings. In order to determine whether any homogenous groups (clusters) of students existed that accurately represented the stages of transition based on their profiles of URICA dimension scores after the completion of the URICA measures, cluster analytic methodologies were applied. An application of the URICA staging adopted to gauge men's readiness to stop using violence in batterer therapy resulted in a six-cluster solution reflecting two Pre-contemplation stage profiles, Contemplation, Preparation, Action High Relapse, and Action Low Relapse stage profiles (Levevsque et al., 2000).

The current application's cluster analysis yielded four understandable stage clusters. There were parallels in the stages that each cluster seemed to portray, despite the fact that the number of clusters varied. The six groups from the domestic violence application were utilized as a guide to comprehend the current data. One cluster with high scores on the Precontemplation dimension and low scores on the other dimensions seemed to properly represent individuals in the Precontemplation Stage. The Contemplation Stage was best represented by the pattern of scores, although the second cluster had lower average means across all dimensions. Because the Preparation Stage had high means on both the Precontemplation and Action dimensions, it was put in the third cluster. The Action stage cluster ultimately displayed high

It was challenging to interpret the URICA clusters due to the experimental nature of the work described here and the lack of a comparison group with similar features. Since this is a new behavioral application

ISSN: 2776-1010 Volume 3, Issue 11, Nov., 2022

with a population that is distinct from other research groups, this study was unable to duplicate Stage cluster solutions established in other behavioral fields. The likelihood that the measures developed do not accurately assess all of the URICA characteristics and would benefit from further measurement development with a more diversified sample of samples could be used to explain why the cluster structures observed here differ from those in other applications. It is also possible that the homogeneous stage clusters are related to the new behavior area and markedly different populations.

The sample of university students included in this study, which was not drawn from a clinical population, generally indicated a low level of preparedness to adopt a healthy diet. It is evident from looking at the kids' readiness ratings by URICA stage that the Contemplation Stage pupils reported relatively poor preparedness to adopt a healthy diet. Given that they are not exhibiting unhealthy eating patterns, students in the Contemplation Stage may not necessarily need to change their eating habits. Nonetheless, these students are open to doing so if the situation calls for it. On the other hand, children in the Precontemplation Stage do report more harmful eating practices, indicating that they might not be.

The relationships between the URICA Stages and the pertinent TTM elements, including Decisional Balance and Self-Efficacy, are generally consistent with URICA's findings in other behavioral applications. Even the unweighted study, which examined how Stage and Pros and Cons related to one another, showed that Pros should increase from Precontemplation to Action while Cons should decrease, with a crossover between Contemplation and Preparation. Results on the Self-Efficacy Scales as well as ratings of the students' dietary practices that maintain their optimal health and ward off illness and/or disease showed expected rises from lower to higher Stages of Change. Because this study was exploratory, the results are promising and suggest that additional research is required to fully assess the utility of the URICA in this behavioral area.

Conclusion:

The student researcher concludes the following:

The Stages of Change Scale (continuous form), the Processes of Change Scale, the Self-Efficacy Scale, and the Decisional Balance Scale demonstrated excellent values of validity and very good values of reliability.

This study offers empirical evidence in support of the TTM's application to helping university students adopt a healthy diet.

The TTM and behavioral measures used in this study are a great place to start when developing assessment and intervention materials that can be utilized for both prevention with a non-clinical population and in treatment settings with students present to manage an unhealthy diet.

The potential to address varied levels of readiness to engage in healthy food behaviors makes stage-matched and correctly customized interventions more likely to be effective with different populations.

ISSN: 2776-1010 Volume 3, Issue 11, Nov., 2022

Recommendation:

next intervention studies can use experimental manipulation to test the construct validity of these scales, with Contrary to participants in the control group, those allocated to the intervention condition were anticipated to have enhanced valuation of the Pros, decreased concern about the Cons, and increased self-efficacy.

References

1. Allman, J. M., Tetreault, N. A., Hakeem, A. Y., Manaye, K. F., Semendeferi, K., Erwin, J. M., ... & Hof, P. R. (2010). The von Economo neurons in frontoinsular and anterior cingulate cortex in great apes and humans. Brain Structure and Function, 214(5), 495-517.
2. Gray, R., Gray, G., & Brown, E. (2019). A review of prospective registration of trials published in nursing science journals in 2017. Journal of Advanced Nursing, 75(12), 3263-3271.
3. Juengst, S. C. 1992. Breakirig Bread. The Spiritual Significance of Food. Louisville, KY: Westminster/John Knox Press.
4. Levesque, T. (2000). Customer satisfaction with services: putting perceived value into the equation. Journal of services marketing.
5. Raymond, J. L., & Morrow, K. (2020). Krause and mahan's food and the nutrition care process e-book. Elsevier Health Sciences.
6. Wellman, N. S., & Johnson, M. A. (2004). Translating the science of nutrition into the art of healthy eating. Generations, 28(3), 6–10.