

Psykologisk institutt

Eksamensoppgave i PSY3100 Forskningsmetode - Kvantitativ

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Eksamensdato: 19.05.2015

Eksamenstid (fra-til): 09:00 – 13:00

Hjelpemiddelkode/Tillatte hjelpemidler:

Annen informasjon:

Målform/språk: Bokmål

Antall sider: 4

Antall sider vedlegg: 0

Kontrollert av:

Dato

Sign

Alle tre oppgavene må besvares og de teller likt.

Oppgave 1. I caset nedenfor, estimerer forskeren en eksplorerende faktoranalyse basert på et sett av items som representerer ulike motiver for å trene. Itemene er målt på en 6-punktsskala, der respondentene er bedt om å si hvor viktig (1=ikke viktig i det hele tatt *til* 6=veldig viktig) hvert av disse itemene er for å trene.

Tolk utdataene fra denne faktoranalysen ved å bruke tabellene nedenfor.

Communalities		
	Initial	Extraction
For å redusere stressnivået (to reduce the stress level)	1.000	.854
For å få avspenning i kroppen (to release tension)	1.000	.904
For å slappe av mentalt (to mentally relax)	1.000	.850
For å vise andre hva jeg er verdt (to show my worth to others)	1.000	.761
For å få anerkjennelse for det jeg gjør (to gain recognition for my accomplishments)	1.000	.803
For å klare noe andre ikke klarer (to accomplish things that others are incapable of)	1.000	.698
For å bruke tid sammen med venner (to spend time with friends)	1.000	.879
Fordi jeg liker det sosiale (because I like the social aspect)	1.000	.881
For å forebygge helseproblem (to prevent health problems)	1.000	.807
For å ivareta helsen (to main good health)	1.000	.800

Extraction Method: Principal Component Analysis.

Total Variance Explained									
Comp onent	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulativ e %
1	3.094	30.940	30.940	3.094	30.940	30.940	2.595	25.947	25.947
2	2.482	24.823	55.762	2.482	24.823	55.762	2.266	22.664	48.611
3	1.390	13.904	69.667	1.390	13.904	69.667	1.764	17.640	66.252
4	1.270	12.704	82.370	1.270	12.704	82.370	1.612	16.119	82.370
5	.474	4.735	87.105						
6	.395	3.955	91.060						
7	.291	2.914	93.974						
8	.257	2.571	96.545						
9	.211	2.113	98.658						
10	.134	1.342	100.000						

Extraction Method: Principal Component Analysis.

Rotated Component Matrix^a

	Component			
	1	2	3	4
For å redusere stressnivået (to reduce the stress level)	.911			
For å få avspenning i kroppen (to release tension)	.934			
For å slappe av mentalt (to mentally relax)	.905			
For å vise andre hva jeg er verdt (to show my worth to others)		.864		
For å få anerkjennelse for det jeg gjør (to gain recognition for my accomplishments)		.880		
For å klare noe andre ikke klarer (to accomplish things that others are incapable of)		.830		
For å bruke tid sammen med venner (to spend time with friends)			.925	
Fordi jeg liker det sosiale (because I like the social aspect)			.920	
For å forebygge helseproblem (to prevent health problems)				.882
For å ivareta helsen (to main good health)				.878

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Oppgave 2. I caset nedenfor, estimerer forskeren en regresjonsmodell der antall timer brukt på trening i uken er regressert på kjønn, alder og sosialiseringsmotivet for trening.

Tolk utdataene fra denne regresjonsanalysen ved å bruke tabellene nedenfor.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.341	.117	.103	1.714

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	77.953	3	25.984	8.840	.000
	Residual	590.808	201	2.939		
	Total	668.761	204			

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.087	.611		5.048	.000
	Kjønn (gender)	.611	.247	.165	2.473	.014
	Alder (age)	-.034	.010	-.227	-3.417	.001
	Sosialisering (socialising)	.209	.076	.182	2.747	.007

Avhengig variabel: antall timer brukt på trening i uken

Info om uavhengige variabler brukt i regresjonsanalysen

Variabelen 'kjønn' er kodet som 0=kvinner og 1=menn.

Variabelen 'alder' måler respondentenes' alder i antall år.

Variabelen 'sosialisering' måler viktigheten av sosialisering som et motiv for å trene.

En 6-punkts skala (1=ikke viktig i det hele tatt til 6=veldig viktig) er brukt.

Oppgave 3. I variansanalysen (ANOVA) nedenfor er den avhengige variabelen svar på spørsmål om å indikere (på en skala 1=helt uenig til 5=helt enig) hvor enig en er med utsagnet «jeg er pratsom». Uavhengige variablene er alder som inneholder 4 alders grupper.

Tolk utdataene fra denne variansanalysen ved å bruke tabellene nedenfor.

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	30,419	3	10,140	9,185	,000
Within Groups	1099,556	996	1,104		
Total	1129,975	999			

**Multiple Comparisons
(post hoc)**

Games-Howell

(I) Alder 15 år+		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
(J) Alder 15 år+	Lower Bound				Upper Bound	
Under 30 år	30-39 år	,136	,125	,699	-,19	,46
	40-49 år	,247	,102	,077	-,02	,51
	50 år +	,461*	,089	,000	,23	,69
30-39 år	Under 30 år	-,136	,125	,699	-,46	,19
	40-49 år	,111	,122	,800	-,20	,43
	50 år +	,325*	,111	,020	,04	,61
40-49 år	Under 30 år	-,247	,102	,077	-,51	,02
	30-39 år	-,111	,122	,800	-,43	,20
	50 år +	,214	,085	,057	,00	,43
50 år +	Under 30 år	-,461*	,089	,000	-,69	-,23
	30-39 år	-,325*	,111	,020	-,61	-,04
	40-49 år	-,214	,085	,057	-,43	,00

*. The mean difference is significant at the 0.05 level.

Sensorveiledning – PSY3100

Question 1. In the case below, the researcher estimates an exploratory factor analysis based on a set of items measuring motivations for exercising. The items are measured using a 6-point scale asking the respondents to indicate how important (1=not at all important to 6=very important) each of these items is for exercising.

Please interpret the output of this exploratory factor analysis using the tables below.

Here it is expected that the candidate explains what communalities mean. After that in the second table, the eigenvalues and number of factors must be commented and related to total variance explained. In the third table, standardized factor loadings must be explained and decided whether the magnitudes of these loadings are satisfactory. Finally, based on the factor analysis performed, the candidate should write a few lines suggesting whether the whole factor solution is a good one or not.

Question 2. In the case below, the researcher estimates a regression model in which the number of hours spent exercising in a week is regressed onto gender, age and socialising motivation for exercising.

Please interpret the output of this regression analysis using the tables below.

Here it is expected that the candidate explains what R-square, adjusted R-square and standard error of the estimates tell. Next, the F-test in the ANOVA table must be commented and decided whether or not one can move on to interpreting the coefficients. Subsequently, first the unstandardized coefficients must be interpreted individually and then the standardized coefficients must be used to compare the relative importance of the predictors. Finally, based on the regression analysis performed, the candidate should write a few lines suggesting whether the regression model is a good one or not.

Question 3. In the analysis of variance (ANOVA) below, the dependent variable includes responses given to a question asking the respondents to indicate the extent to which they agree with the statement “I am a talkative person”. The independent variable is age including 4 age groups.

Please interpret the output of this ANOVA using the tables below.

Here it is expected that the candidate first explains the ANOVA table based on the F-test. Next, the candidate must locate the statistically significant mean differences among the groups using the second table showing the post hoc analysis results. In doing so, the groups that do not differ from each other must also be located.