Follow-up Meeting: Health Status Assessment Between Schools in Istanbul, Turkey Analysis Results

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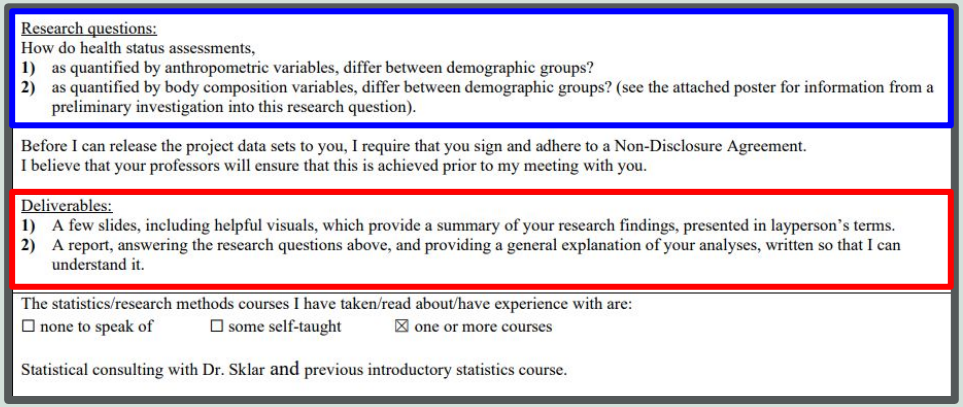
Objectives

- Health status assessment between demographic groups
  - Anthropometric Variables
  - Body Composition Variables
- Explanation/background of statistical methods used in analysis
- Interpretation of results to answer research questions
- Potential drawbacks of analysis



Research questions:
How do health status assessments,
1) as quantified by anthropometric variables, differ between demographic groups?
2) as quantified by body composition variables, differ between demographic groups? (see the attached poster for information from a preliminary investigation into this research question).

Before I can release the project data sets to you, I require that you sign and adhere to a Non-Disclosure Agreement.
I believe that your professors will ensure that this is achieved prior to my meeting with you.

Deliverables:
1) A few slides, including helpful visuals, which provide a summary of your research findings, presented in layperson's terms.
2) A report, answering the research questions above, and providing a general explanation of your analyses, written so that I can understand it.

The statistics/research methods courses I have taken/read about/have experience with are:
☐ none to speak of ☐ some self-taught ☒ one or more courses

Statistical consulting with Dr. Sklar and previous introductory statistics course.

Background

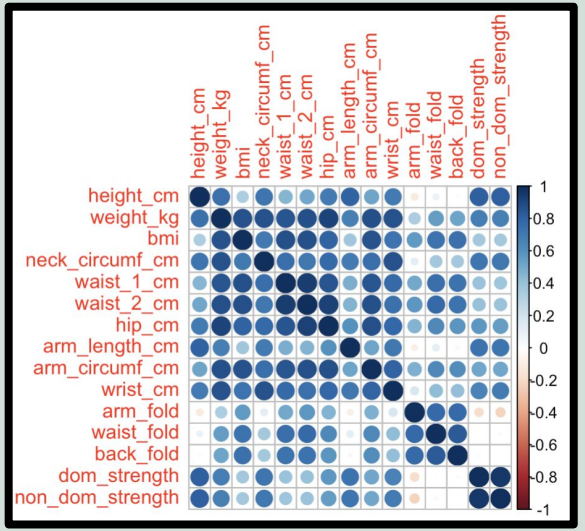
Body Comp Data

Student #	Gender	Age (yrs)	Height (cm	Weight (Kg	BMI	k Circumf	Waist I (cm	Waist II (cm	Hip (cm)	n length (a	Circumf (a	Wrist (cm)	Arm fold	Waist fold	Back fold	om. Streng	Dom. stre	School
1112	F	11	138	29.1	15.3	27.25	56.5	67.25	78	26	21.25	13	12.3	2.5	5.9	13.15	12	Zappeion
1114	F	11	142	33.7	16.7	28.5	68.25	70.75	78.5	27.5	23.3	14	13.7	11.8	9.7	12.3	11	Zappeion
1113	F	11	138	30.7	16.1	29.25	67.75	70	78.75	26	21	13.5	21.1	8.8	15.9	11.9	10.7	Zappeion

Anthropometric Data

S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
School	BODY TYPE	AGE	BMR (kcal)	FAT%	T MASS (k	FFM (kg)	TBW (kg)	ole Body	ight Leg (S	eft Leg (S	ght Arm (S	eft Arm (S	Fat% - RL	Mass (kg)	FM (kg) - R	Muscle Ma	Fat% - LL	Mass (kg)	FM (kg) - L
Zappeion	STANDARI	10.0	1070.0	23.3	7.3	23.9	17.5	843.0	333.0	330.0	495.0	496.0	30.8	1.6	3.7	3.5	30.6	1.6	3.6
Zappeion	STANDARI	10.0	1154.0	23.8	8.5	27.4	20.1	767.0	279.0	285.0	441.0	451.0	28.8	1.9	4.7	4.4	29.9	1.9	4.4
Zappeion	STANDARI	10.0	1128.0	24.3	8.4	26.3	19.3	758.0	297.0	290.0	439.0	440.0	31.2	1.9	4.2	4.0	31.1	1.9	4.1

- Data downloaded and read in into Statistical Analysis Software
  - Manipulated data so that everything is in one dataset
- Data limitations
  - Correlation amongst health status variables
  - Small sample size
  - Removal of data points



Correlation Plot

Body Composition Model

- Linear Mixed-Effects Model vs. MANOVA
  - Age and Gender as random effects
- Findings
  - Zappeion
    - Impedance - Both arms
  - Zographeion
    - Fat % and Fat Mass

Table 2: Significant Differences in Body Composition Between Schools

			Impedance (Ω)		Right Leg	Right Arm	Left Arm	Trunk	
School	Fat %	Fat Mass (kg)	Right Arm (Ω)	Left Arm (Ω)	Fat%	Fat%	Fat%	Fat%	Fat Mass (kg)
Zappeion	2.678	1.542	33.91**	40.35**	0.552	2.556	3.165	3.90**	1.1471
Zographeion	4.341**	3.64**	24.23	27.68	3.71**	4.357**	5.31**	4.686**	1.9379**
Meg. Sholi	Ref. Group	--	--	--	--	--	--	--	--

** Values are Significant

Anthropometric Model

- Linear Mixed-Effects Model vs. MANOVA
  - Age and Gender as random effects
- Findings
  - Arm Length (cm)
  - Waist Difference (cm)

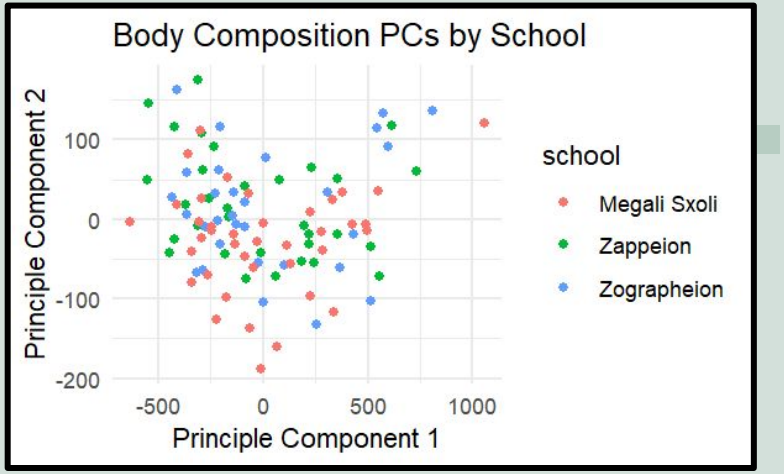
Table 1: Significant Anthropometric Differences Between Schools

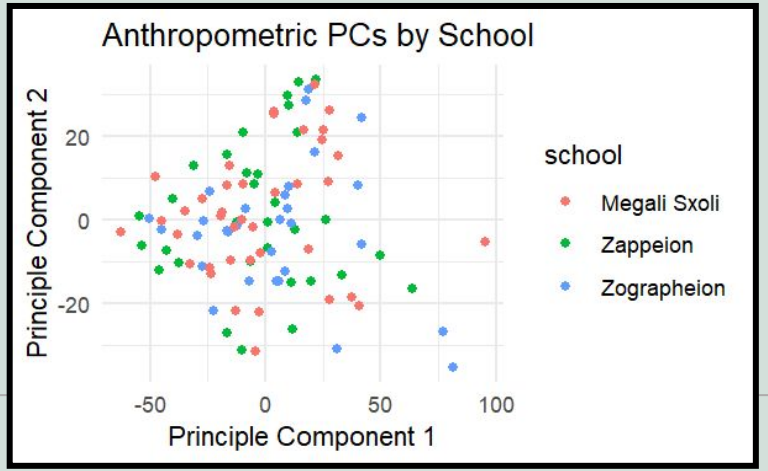
	Anthropometrics	Created Variables
School	Arm length (cm)	Waist Diff
Zappeion	1.6923**	-0.7064
Zographeion	2.5484**	-1.6739**
Meg. Sholi	Ref. Group	--

** Values are Significant

PCA

- Principal Component Analysis - Explores the “differences” between the clusters
- No clear trends
- No distinct groupings
- Indicates not many differences amongst the three clusters for both data sets
- Supports previous analysis





Thank you for your time!

Any Questions?