REPORTING *for* STATISTICAL ANALYSIS

MASTER OF PUBLIC HEALTH PROGRAM
STAT 7311 - BIOSTATISTICS
LECTURE 2

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"Statistics is the grammar of science" ***Karl Pearson***
(1857 – 1936, influential English mathematician)

EQUATOR Guideline on reporting analysis plan

Observational studies

STROBE Statement—checklist of items that should be included in reports of observational studies

	Item No	Recommendation
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found
Introduction		
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported
Objectives	3	State specific objectives, including any prespecified hypotheses
Methods		
Study design	4	Present key elements of study design early in the paper
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection
Participants	6	(*a*) *Cohort study*—Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up *Case-control study*—Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls *Cross-sectional study*—Give the eligibility criteria, and the sources and methods of selection of participants
		(*b*) *Cohort study*—For matched studies, give matching criteria and number of exposed and unexposed *Case-control study*—For matched studies, give matching criteria and the number of controls per case
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group
Bias	9	Describe any efforts to address potential sources of bias
Study size	10	Explain how the study size was arrived at
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding
		(*b*) Describe any methods used to examine subgroups and interactions
		(*c*) Explain how missing data were addressed
		(*d*) *Cohort study*—If applicable, explain how loss to follow-up was addressed *Case-control study*—If applicable, explain how matching of cases and controls was addressed *Cross-sectional study*—If applicable, describe analytical methods taking account of sampling strategy
		(*e*) Describe any sensitivity analyses

Continued on next page

EQUATOR Guideline on reporting analysis plan

Observational studies

Results		
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed
		(b) Give reasons for non-participation at each stage
		(c) Consider use of a flow diagram
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders
		(b) Indicate number of participants with missing data for each variable of interest
		(c) *Cohort study*—Summarise follow-up time (eg, average and total amount)
Outcome data	15*	*Cohort study*—Report numbers of outcome events or summary measures over time
		Case-control study—Report numbers in each exposure category, or summary measures of exposure
		Cross-sectional study—Report numbers of outcome events or summary measures
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included
		(*b*) Report category boundaries when continuous variables were categorized
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses
Discussion		
Key results	18	Summarise key results with reference to study objectives
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence
Generalisability	21	Discuss the generalisability (external validity) of the study results
Other information		
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.

EQUATOR Guideline on reporting analysis - Intervention

Section/topic	No	CONSORT 2025 checklist item description	Reported on page no.
Title and abstract			
Title and structured abstract	1a	Identification as a randomised trial	
	1b	Structured summary of the trial design, methods, results, and conclusions	
Open science			
Trial registration	2	Name of trial registry, identifying number (with URL) and date of registration	
Protocol and statistical analysis plan	3	Where the trial protocol and statistical analysis plan can be accessed	
Data sharing	4	Where and how the individual de-identified participant data (including data dictionary), statistical code and any other materials can be accessed	
Funding and conflicts of interest	5a	Sources of funding and other support (eg, supply of drugs), and role of funders in the design, conduct, analysis and reporting of the trial	
	5b	Financial and other conflicts of interest of the manuscript authors	
Introduction			
Background and rationale	6	Scientific background and rationale	
Objectives	7	Specific objectives related to benefits and harms	
Methods			
Patient and public involvement	8	Details of patient or public involvement in the design, conduct and reporting of the trial	
Trial design	9	Description of trial design including type of trial (eg, parallel group, crossover), allocation ratio, and framework (eg, superiority, equivalence, non-inferiority, exploratory)	
Changes to trial protocol	10	Important changes to the trial after it commenced including any outcomes or analyses that were not prespecified, with reason	
Trial setting	11	Settings (eg, community, hospital) and locations (eg, countries, sites) where the trial was conducted	
Eligibility criteria	12a	Eligibility criteria for participants	
	12b	If applicable, eligibility criteria for sites and for individuals delivering the interventions (eg, surgeons, physiotherapists)	
Intervention and comparator	13	Intervention and comparator with sufficient details to allow replication. If relevant, where additional materials describing the intervention and comparator (eg, intervention manual) can be accessed	
Outcomes	14	Prespecified primary and secondary outcomes, including the specific measurement variable (eg, systolic blood pressure), analysis metric (eg, change from baseline, final value, time to event), method of aggregation (eg, median, proportion), and time point for each outcome	
Harms	15	How harms were defined and assessed (eg, systematically, non-systematically)	
Sample size	16a	How sample size was determined, including all assumptions supporting the sample size calculation	
	16b	Explanation of any interim analyses and stopping guidelines	
Randomisation:			
Sequence generation	17a	Who generated the random allocation sequence and the method used	
	17b	Type of randomisation and details of any restriction (eg, stratification, blocking and block size)	

EQUATOR Guideline on reporting analysis - Intervention

			Reported on page no.
Allocation concealment mechanism	18	Mechanism used to implement the random allocation sequence (eg, central computer/telephone; sequentially numbered, opaque, sealed containers), describing any steps to conceal the sequence until interventions were assigned	
Implementation	19	Whether the personnel who enrolled and those who assigned participants to the interventions had access to the random allocation sequence	
Blinding	20a	Who was blinded after assignment to interventions (eg, participants, care providers, outcome assessors, data analysts)	
	20b	If blinded, how blinding was achieved and description of the similarity of interventions	
Statistical methods	21a	Statistical methods used to compare groups for primary and secondary outcomes, including harms	
	21b	Definition of who is included in each analysis (eg, all randomised participants), and in which group	
	21c	How missing data were handled in the analysis	
	21d	Methods for any additional analyses (eg, subgroup and sensitivity analyses), distinguishing prespecified from post hoc	
Results			
Participant flow, including flow diagram	22a	For each group, the numbers of participants who were randomly assigned, received intended intervention, and were analysed for the primary outcome	
	22b	For each group, losses and exclusions after randomisation, together with reasons	
Recruitment	23a	Dates defining the periods of recruitment and follow-up for outcomes of benefits and harms	
	23b	If relevant, why the trial ended or was stopped	
Intervention and comparator delivery	24a	Intervention and comparator as they were actually administered (eg, where appropriate, who delivered the intervention/comparator, how participants adhered, whether they were delivered as intended (fidelity))	
	24b	Concomitant care received during the trial for each group	
Baseline data	25	A table showing baseline demographic and clinical characteristics for each group	
Numbers analysed, outcomes and estimation	26	For each primary and secondary outcome, by group: • the number of participants included in the analysis • the number of participants with available data at the outcome time point • result for each group, and the estimated effect size and its precision (such as 95% confidence interval) • for binary outcomes, presentation of both absolute and relative effect size	
Harms	27	All harms or unintended events in each group	
Ancillary analyses	28	Any other analyses performed, including subgroup and sensitivity analyses, distinguishing pre-specified from post hoc	
Discussion			
Interpretation	29	Interpretation consistent with results, balancing benefits and harms, and considering other relevant evidence	
Limitations	30	Trial limitations, addressing sources of potential bias, imprecision, generalisability, and, if relevant, multiplicity of analyses	

Citation: Hopewell S, Chan AW, Collins GS, Hróbjartsson A, Moher D, Schulz KF, et al. CONSORT 2025 Statement: updated guideline for reporting randomised trials. BMJ. 2025; 388:e081123. https://dx.doi.org/10.1136/bmj-2024-081123

*We strongly recommend reading this statement in conjunction with the CONSORT 2025 Explanation and Elaboration and/or the CONSORT 2025 Expanded Checklist for important clarifications on all the items. We also recommend reading relevant CONSORT extensions. See www.consort-spirit.org.

EQUATOR Guideline on reporting analysis - Others

PRISMA - Systematic review

STARD - Diagnostic / prognostic study

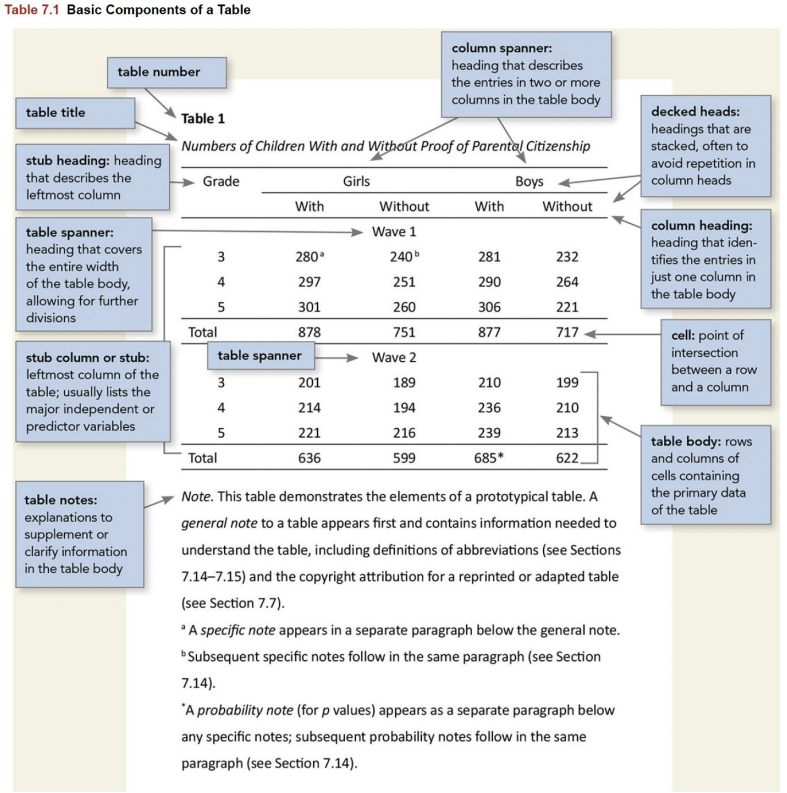
PRESENTING DUMMY TABLE / FIGURES

- IIUM Guideline for the table and figure formatting
- APA 7TH Edition Formatting for the statistical reporting

What is dummy table or dummy figure

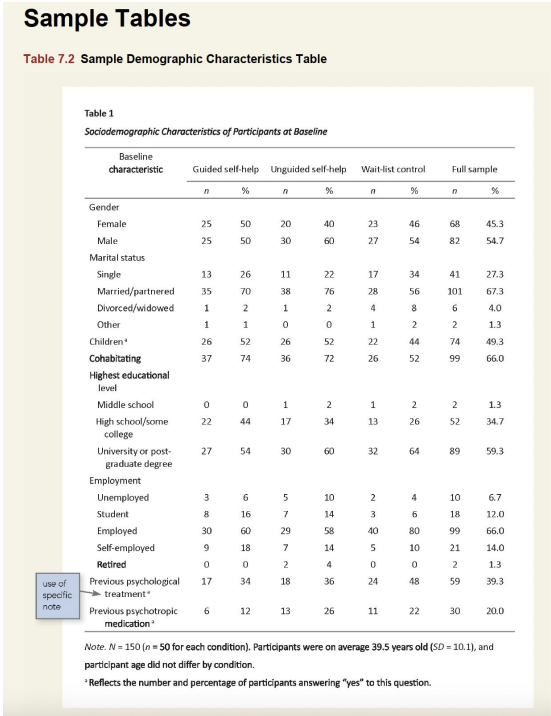
- Pre specified result table or figure with the designated variables , statistical test used and pre specified analysis
- Empty cells
- In order of research objectives

TABLE ANATOMY



General Table

Outcome or DV in column
Column percentages
Not row percentages
Capital N for total sample
Small n for sub sample



Sample Tables

Table 7.2 Sample Demographic Characteristics Table

Table 1

Sociodemographic Characteristics of Participants at Baseline

Baseline characteristic	Guided self-help		Unguided self-help		Wait-list control		Full sample	
	n	%	*n*	%	*n*	%	*n*	%
Gender								
Female	25	50	20	40	23	46	68	45.3
Male	25	50	30	60	27	54	82	54.7
Marital status								
Single	13	26	11	22	17	34	41	27.3
Married/partnered	35	70	38	76	28	56	101	67.3
Divorced/widowed	1	2	1	2	4	8	6	4.0
Other	1	1	0	0	1	2	2	1.3
Children[a]	26	52	26	52	22	44	74	49.3
Cohabitating	37	74	36	72	26	52	99	66.0
Highest educational level								
Middle school	0	0	1	2	1	2	2	1.3
High school/some college	22	44	17	34	13	26	52	34.7
University or post-graduate degree	27	54	30	60	32	64	89	59.3
Employment								
Unemployed	3	6	5	10	2	4	10	6.7
Student	8	16	7	14	3	6	18	12.0
Employed	30	60	29	58	40	80	99	66.0
Self-employed	9	18	7	14	5	10	21	14.0
Retired	0	0	2	4	0	0	2	1.3
Previous psychological treatment[a]	17	34	18	36	24	48	59	39.3
Previous psychotropic medication[a]	6	12	13	26	11	22	30	20.0

use of specific note

Note. $N = 150$ ($n = 50$ for each condition). Participants were on average 39.5 years old ($SD = 10.1$), and participant age did not differ by condition.

[a] Reflects the number and percentage of participants answering "yes" to this question.

Chi square table

Chi square with degree of freedom

Table footnote for significant findings

Column or row % ?

Cross sectional - Row % with row IV

Cohort - Row % with row exposure

Case control - Column % with column outcome

Intervention - Column % with column of arm

Table 7.7 Sample Chi-Square Analysis Table

Table 1

Frequencies and Chi-Square Results for Belief Perseverance in Attitudes Toward Celebrities (N = 201)

Source	Do not believe		Unsure		Believe		$\chi^2(2)$
	n	%	n	%	n	%	
Media reports	17	8.46	140	69.65	44	21.89	124.75*
Family reports	47	23.38	106	52.74	48	23.88	34.06*
Friends' reports	42	20.90	112	55.72	47	23.38	45.52*
Caught by media	19	9.45	82	40.80	100	49.75	54.00*
Celebrity display of behavior	12	5.97	61	30.35	128	63.68	101.22*

*$p < .001$.

t test table

t statistic

degree of freedom

p value

Effect size

Table 2

Results of Curve-Fitting Analysis Examining the Time Course of Fixations to the Target

exact *p* values

Logistic parameter	9-year-olds		16-year-olds		*t*(40)	*p*	Cohen's *d*
	M	*SD*	*M*	*SD*			
Maximum asymptote, proportion	.843	.135	.877	.082	0.951	.347	0.302
Crossover, in ms	759	87	694	42	2.877	.006	0.840
Slope, as change in proportion per ms	.001	.0002	.002	.0002	2.635	.012	2.078

Note. For each participant, the logistic function was fit to target fixations separately. The maximum asymptote is the asymptotic degree of looking at the end of the time course of fixations. The crossover is the point in time when the function crosses the midway point between peak and baseline. The slope represents the rate of change in the function measured at the crossover. Mean parameter values for each of the analyses are shown for the 9-year-olds (n = 24) and the 16-year-olds (n = 18), as well as the results of t tests (assuming unequal variance) comparing the parameter estimates between the two ages.

Correlation test

Correlation coefficient

Table footnote for sig finding

Table 7.10 Sample Correlation Table for One Sample

Table 1

Descriptive Statistics and Correlations for Study Variables

Variable	*n*	*M*	*SD*	1	2	3	4	5	6	7
1. Internal–external status[a]	3,697	0.43	0.49	—						
2. Manager job performance	2,134	3.14	0.62	−.08**	—					
3. Starting salary[b]	3,697	1.01	0.27	.45**	−.01	—				
4. Subsequent promotion	3,697	0.33	0.47	.08**	−.07**	.04*	—			
5. Organizational tenure	3,697	6.45	6.62	−.29**	.09**	.01	.09**	—		
6. Unit service performance[c]	3,505	85.00	6.98	−.25**	−.39**	.24**	.08**	.01	—	
7. Unit financial performance[c]	694	42.61	5.86	.00	−.03	.12*	−.07	−.02	.16**	—

use of specific note

asterisks for *p* values

[a] 0 = internal hires and 1 = external hires. [b] A linear transformation was performed on the starting salary values to maintain pay practice confidentiality. The standard deviation (0.27) can be interpreted as 27% of the average starting salary for all managers. Thus, ±1 *SD* includes a range of starting salaries from 73% (i.e., 1.00 − 0.27) to 127% (i.e., 1.00 + 0.27) of the average starting salaries for all managers. [c] Values reflect the average across 3 years of data.

*$p < .05$. **$p < .01$.

One way ANOVA

F statistics

Degree of freedom

Effect size or *p* value

Table 7.12 Sample Analysis of Variance Table (Option 1)

Table 1

Means, Standard Deviations, and One-Way Analyses of Variance in Psychological and Social Resources and Cognitive Appraisals

Measure	Urban		Rural		F(1, 294)	η^2
	M	SD	M	SD		
Self-esteem	2.91	0.49	3.35	0.35	68.87^{***}	.19
Social support	4.22	1.50	5.56	1.20	62.60^{***}	.17
Cognitive appraisals						
Threat	2.78	0.87	1.99	0.88	56.35^{***}	.20
Challenge	2.48	0.88	2.83	1.20	7.87^{***}	.03
Self-efficacy	2.65	0.79	3.53	0.92	56.35^{***}	.16

$^{***}p < .001$.

Regression table

Beta coefficient / Odds ratio

Standard error

t statistics

p value

Confidence interval

Table 7.16 Sample Regression Table, With Confidence Intervals in Brackets

Table 4

Regressions of Associations Between Marital Satisfaction and Average Levels of Marital Behavior

Variable	*B*	*SE*	*t*	*p*	95% CI
		Angry behavior			
Actor					
H → H	−98.90	40.20	−2.46	.016	[− 179.1, −18.7]
W → W	−.87.11	30.87	−2.82	.006	[−148.7, −25.6]
Partner					
W → H	−76.18	39.43	−1.93	.057	[−154.8, 2.4]
H → W	−91.80	38.16	−2.41	.019	[−167.9, −15.7]
		Disregard			
Actor					
H → H	−38.62	27.86	−1.39	.170	[−94.2, 16.9]
W → W	−47.54	26.99	−1.76	.082	[−101.4, 6.3]
Partner					
W → H	−82.81	32.01	−2.59	.012	[−146.6, −19.0]
H → W	−79.36	27.16	−2.92	.005	[−133.5, −25.2]
		Distancing			
Actor					
H → H	−47.42	24.72	−1.92	.059	[−96.7, 1.9]
W → W	3.04	23.48	0.13	.897	[−43.8, 49.8]
Partner					
W → H	−0.05	23.91	0.00	.998	[−47.7, 47.6]
H → W	−53.50	24.47	−2.19	.032	[−102.3, −4.7]

Note. CI = confidence interval; H → H = husband-as-actor effect on the husband's own marital satisfaction; W → W = wife-as-actor effect on the wife's own marital satisfaction; W → H = wife-as-partner effect on the husband's satisfaction; H → W = husband-as-partner effect on the wife's satisfaction.

square brackets around confidence intervals

Regression table

Beta coefficient / OR

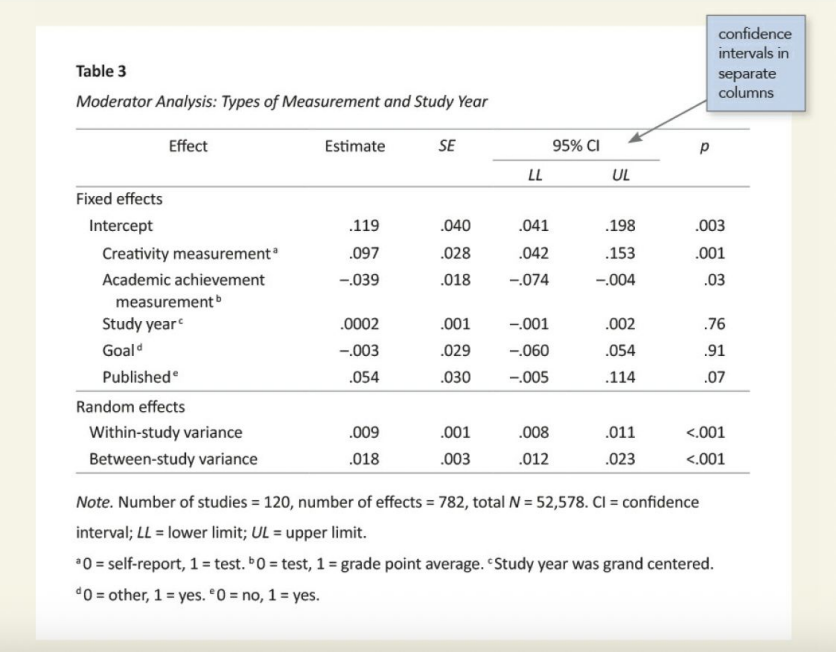
Standard error

t statistics

p value

Confidence interval

Use superscript lowercase letter italic



confidence intervals in separate columns

Table 3

Moderator Analysis: Types of Measurement and Study Year

Effect	Estimate	*SE*	95% CI		*p*
			LL	*UL*	
Fixed effects					
Intercept	.119	.040	.041	.198	.003
Creativity measurement[a]	.097	.028	.042	.153	.001
Academic achievement measurement[b]	−.039	.018	−.074	−.004	.03
Study year[c]	.0002	.001	−.001	.002	.76
Goal[d]	−.003	.029	−.060	.054	.91
Published[e]	.054	.030	−.005	.114	.07
Random effects					
Within-study variance	.009	.001	.008	.011	<.001
Between-study variance	.018	.003	.012	.023	<.001

Note. Number of studies = 120, number of effects = 782, total *N* = 52,578. CI = confidence interval; *LL* = lower limit; *UL* = upper limit.

[a]0 = self-report, 1 = test. [b]0 = test, 1 = grade point average. [c]Study year was grand centered.

[d]0 = other, 1 = yes. [e]0 = no, 1 = yes.

CONFIRMATORY FACTOR ANALYSIS (CFA)

Describe for each models

The model fit indices

Table 7.21 Sample Confirmatory Factor Analysis Model Comparison Table

Table 2

Results of Confirmatory Factor Analysis for the Relationships Among Three Types of Intelligence

Model	χ^2	df	NFI	CFI	RMSEA
A: One-intelligence model [a]	10,994.664***	1539	.296	.326	.115
B: Two-intelligences model [b]	10,091.236***	1538	.354	.390	.109
C: Three-intelligences model [c]	8,640.066***	1536	.447	.494	.100

Note. Structural equation modeling was used for the analysis. NFI = normed fit index; CFI = comparative fit index; RMSEA = root-mean-square error of approximation.

[a] In Model A, all 57 items of social intelligence, emotional intelligence, and cultural intelligence were loaded onto one factor. [b] In Model B, the 21 items of social intelligence were loaded onto one factor, and the 16 items of emotional intelligence and the 20 items of cultural intelligence were loaded onto another factor. [c] In Model C, the 21 items of social intelligence were loaded onto one factor, the 16 items of emotional intelligence were loaded onto a second factor, and the 20 items of cultural intelligence were loaded onto a third factor.

***$p < .001$.

EXPLORATORY FACTOR ANALYSIS (EFA)

Present the factor loadings

Table 7.14 Sample Factor Analysis Table

Table 1

Results From a Factor Analysis of the Parental Care and Tenderness (PCAT) Questionnaire

PCAT item	Factor loading		
	1	2	3
Factor 1: Tenderness—Positive			
20. You make a baby laugh over and over again by making silly faces.	**.86**	.04	.01
22. A child blows you kisses to say goodbye.	**.85**	−.02	−.01
16. A newborn baby curls its hand around your finger.	**.84**	−.06	.00
19. You watch as a toddler takes their first step and tumbles gently back down.	**.77**	.05	−.07
25. You see a father tossing his giggling baby up into the air as a game.	**.70**	.10	−.03
Factor 2: Liking			
5. I think that kids are annoying. (R)	−.01	**.95**	.06
8. I can't stand how children whine all the time. (R)	−.12	**.83**	−.03
2. When I hear a child crying, my first thought is "shut up!" (R)	.04	**.72**	.01
11. I don't like to be around babies. (R)	.11	**.70**	−.01
14. If I could, I would hire a nanny to take care of my children. (R)	.08	**.58**	−.02
Factor 3: Protection			
7. I would hurt anyone who was a threat to a child.	−.13	−.02	**.95**
12. I would show no mercy to someone who was a danger to a child.	.00	−.05	**.74**
15. I would use any means necessary to protect a child, even if I had to hurt others.	.06	.08	**.72**
4. I would feel compelled to punish anyone who tried to harm a child.	.07	.03	**.68**
9. I would sooner go to bed hungry than let a child go without food.	.46	−.03	**.36**

Note. N = 307. The extraction method was principal axis factoring with an oblique (promax with Kaiser normalization) rotation. Factor loadings above .30 are in bold. Reverse-scored items are denoted with (R). Adapted from "Individual Differences in Activation of the Parental Care Motivational System: Assessment, Prediction, and Implications," by E. E. Buckels, A. T. Beall, M. K. Hofer, E. Y. Lin, Z. Zhou, and M. Schaller, 2015, *Journal of Personality and Social Psychology, 108*(3), p. 501 (https://doi.org/10.1037/pspp0000023). Copyright 2015 by the American Psychological Association.

use of bold on factor loadings

example copyright attribution for an adapted table when permission is not necessary

IIUM THESIS GUIDELINE (TABLE)

APA Table line rules

-Top line,Bottom line

-Line below column header

APA Table number bold but table title normal

Figure title top

IIUM Table line rules - all lines

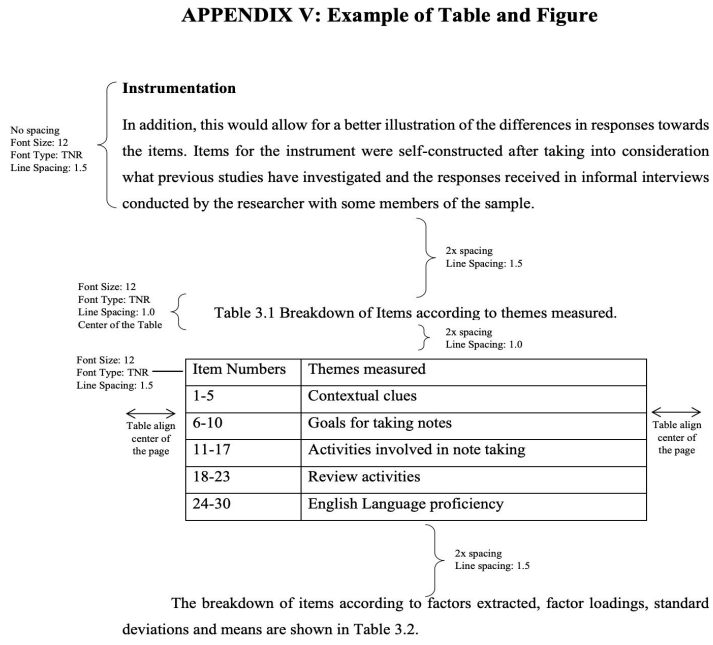
Table number and title normal

1.5 spacing with double spacing after text and before text

1.0 spacing with double spacing after title

Figure title bottom

Table centred



APPENDIX W: Example of table specifications (landscape)

Font Size: 12
Font Type: TNR
Line Spacing: 1.5
Center of the Table

Table 3.2 Factors underlying Students' Perceptions towards Note Taking: Items, Factors, Mean and Standard Deviation

Factor	Items	Factor Loadings	M	SD
English Language Proficiency	I take less complete notes in English.	0.83	3.36	1.63
	I translate my notes from English to Malay Language.	0.78	2.92	1.76
	I find it difficult to understand my notes if it is written in English.	0.77	2.7	1.68
	I find it difficult to take notes since the lecture is in English.	0.72	3.37	1.79
	I must refer to dictionary since my notes is in English	0.57	4.32	1.71
Activities in Note Taking	I copy down all the key words used by my lecturer.	0.75	5.84	1.18
	I use diagrams in my notes.	0.74	4.87	1.4
	I underline the important points.	0.73	5.85	1.36
	I use different colored pens to differentiate the main ideas from the supporting ones.	0.7	4.57	1.86
Review Activities	I have a back-up copy of my notes.	0.71	4.04	1.02
	I use my own words in taking down notes.	0.68	5.03	1.31
	I update my notes regularly.	0.61	4.67	1.3
	I check with my lecturer if my notes are complete or not.	0.6	3.31	1.62
	I summarize all the points mentioned by my lecturer in a short paragraph.	0.58	4.05	1.41
Reasons for Taking Notes	I review my notes to prepare for examinations.	0.83	6.66	0.7
	I feel more confident to examinations after I have studied my notes.	0.81	6.38	0.99
	I understand my topic better if I take notes.	0.52	4.81	0.94
	I read my notes to prepare for classroom discussion.	0.41	5.66	1.14
Contextual Clues	I take down notes when my instructor uses phrases like "pay attention to this", "listen carefully", and "look here" before mentioning the points.	0.84	6.28	1.22
	I copy down the information that my lecturer repeats more than twice.	0.83	5.9	1.36
	I record the information on a topic when asked by my instructor.	0.54	5.04	1.7
	I scribble down the information on topics that my lecturer elaborates in detail.	0.51	5.57	1.14

Note. Factors were determined using Principle Component Analysis. M=Median; SD= Significant Difference.

Table align center of the page

Table align center of the page

9

1.3cm

Notes:
Page number is appeared at the bottom of the page as in vertical layout

Font Size: 12
Font Type: TNR
Line Spacing: 1.0
Same with the Table
Add space before paragraph

Minimum 10-point font size,single space, justified if applicable

USE NUMERALS

Use numerals (1, 2, 3, etc.) for the following:

- numbers 10 and above; see exceptions in the next section
- numbers used in statistics (e.g., 2.45, 3 times as many, 2 x 2 design)
- numbers used with units of measurement (e.g., 7-mg dose, 3-in. increments)
- times (e.g.,1 hr 34 min), ages (e.g., 2 years old), and dates (e.g., March 6)
- scores and points on a scale (e.g., score of 6, 5-point Likert scale)
- exact sums of money (e.g., $10 in compensation)
- numbers used as numerals (e.g., the numeral 4 on the chart)
- numbers denoting a place in a numbered series (e.g., Grade 6, Items 2 and 3, Row 4)
- parts of books (e.g., Chapter 1)
- table and figure numbers (e.g., Figure 1, Table 2)

USE WORDS

- **Use words** (zero, one, two, three, etc.) for the following:
  - ° numbers zero through nine (e.g., five members); see exceptions in the previous section
  - ° numbers beginning a sentence, heading, or title (e.g., Sixty participants volunteered for)
  - ° common fractions (e.g., one half, one fifth, a two-thirds majority)
  - ° universally accepted phrases (e.g., Twelve Apostles, Five Pillars of Islam)

- **Combine numerals and words** to express back-to- back numerical modifiers (e.g., ten 7-point scales, 2 two-way interactions).

COMMAS AND PLURALS

- **Commas in numbers**
  - ° Use commas between groups of three digits in most figures of 1,000 or more, i.e Incidence of 4.3 in 1,000 populations.
  - ° Do not use commas in page numbers, binary digits, serial numbers, degrees of temperature, degrees of freedom, and acoustic frequencies above 1000.
- **Plurals of numbers**
  - ° Add “s” or “es” (without an apostrophe) to form plural numerals or words (e.g., fours, sixes, 1950s, *M*s, *p*s).
  - ° Do not make symbols or measurement abbreviations plural (e.g., 3 cm, not 3 cms).

Decimals

see *Publication Manual* Section 6.36 for guidelines on decimal places

- Put a zero before the decimal point when a number is less than 1 but the statistic can exceed 1.
- Do not use a zero before a decimal when the statistic cannot be greater than 1 (proportion, correlation, level of statistical significance).
- In general:
  - Report means and standard deviations for data measured on integer scales (e.g., surveys and questionnaires) to one decimal.
  - Report other means and standard deviations and correlations, proportions, and inferential statistics (*t*, *F*, chi-square) to two decimals.
  - Report exact *p* values to two or three decimals (e.g., $p = .006$, $p = .03$).
  - However, report *p* values less than .001 as "$p < .001$."
- Keep in mind that these are general guidelines and that the most important consideration when deciding the number of decimal places to use in reporting results is the following: **Round as much as possible while considering prospective use and statistical precision.** See *Publication Manual* Section 6.36 for additional guidelines.

Statistics

see *Publication Manual* Sections 6.40–6.45 for guidelines on reporting statistics

- Do not repeat statistics in both the text and a table or figure.
- In tables and figures, report exact *p* values (e.g., *p* = .015), unless *p* is < .001 (instead write as "<.001"). *p* italic small no hyphen
- Put a space before and after a mathematical operator (e.g., minus, plus, greater than, less than). For a negative value, put a space only before the minus sign, not after it (e.g., –8.25).
- Use the symbol or abbreviation for statistics with a mathematical operator (e.g., *M* = 7.7).
- Use the term, not the symbol, for statistics in the text (e.g., "the means were").
- Use italics for letters used as statistical symbols or algebraic variables (e.g., contained 587 *t*-test *p* values; *R*2 = .12)
- However, use standard (non italic) type for Greek letters. See *Publication Manual* Table 6.5 for specific examples.
- Do not define symbols or abbreviations that represent statistics (e.g., *M*, *SD*, *F*, *t*, *df*, *p*, *N*, *n*, *OR*) and abbreviations or symbols composed of Greek letters. See Table 6.5.
- Define other abbreviations (e.g., AIC, ANOVA, BIC, CFA, CI, NFI, RMSEA, SEM). See Table 6.5.

Insert mathematical symbols

Insert add-in for common symbols

Chi-square $\chi 2$

Regression beta β

In-Text Statistical Reporting

Examples of APA-style statistical reporting:

- Mean and SD: $M = 23.45$, $SD = 4.56$
- *t*-test: $t(28) = 2.34$, $p = .026$
- ANOVA: $F(2, 57) = 5.21$, $p = .008$, $\eta^2 = .15$
- Correlation: $r = .52$, $p < .01$
- Regression: $\beta = .34$, $t = 2.12$, $p = .038$

Example in Text

- Participants in the treatment group (M = 60.23, SD = 11.55) outperformed those in the control group (M = 45.67, SD = 12.34), $t(58) = 4.12$, $p < .001$. As shown in Table 1, the treatment group's performance was significantly higher. Figure 1 illustrates these differences in mean test scores.

THANK YOU

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