

```
1138 0 OUTPUT ACTIVATE ReverseCodingLikertItemsOutput.  
1138 0 M> OUTPUT ACTIVATE ReverseCodingLikertItemsOutput.  
1139 0 TITLE 'Reverse Coding Likert Items'.  
1139 0 M> TITLE 'Reverse Coding Likert Items'.
```

Reverse Coding Likert Items

```
1140 0
1140 0 M>
1141 0 GET DATA
1141 0 M> GET DATA
1142 0 /TYPE=TXT /FILE='D:\DATA ANALYSIS\M Survey and Likert Scale Analysis
\Reverse Coding Likert Items\dataset.csv' /ENCODING='U
      TF8' /DELCASE=LINE /DELIMITERS=', ' /QUALIFIER='''
1142 0 M> /TYPE=TXT /FILE='D:\DATA ANALYSIS\M Survey and Likert Scale Analy
sis\Reverse Coding Likert Items\dataset.csv' /ENCODING
      ='UTF8' /DELCASE=LINE /DELIMITERS=', ' /QUALIFIER='''
1143 0 /ARRANGEMENT=DELIMITED /FIRSTCASE=2
1143 0 M> /ARRANGEMENT=DELIMITED /FIRSTCASE=2
1144 0 /VARIABLES=
1144 0 M> /VARIABLES=
1145 0 school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A8 Medu F8.0
Fedu F8.0
1145 0 M> school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A8 Medu F
8.0 Fedu F8.0
1146 0 Mjob A16 Fjob A16 reason A16 guardian A16 traveltime F8.0 studytime
F8.0 failures F8.0
1146 0 M> Mjob A16 Fjob A16 reason A16 guardian A16 traveltime F8.0 studyti
me F8.0 failures F8.0
1147 0 schoolsup A8 famsup A8 paid A8 activities A8 nursery A8 higher A8 in
ternet A8 romantic A8
1147 0 M> schoolsup A8 famsup A8 paid A8 activities A8 nursery A8 higher A8
internet A8 romantic A8
1148 0 famrel F8.0 freetime F8.0 goout F8.0 Dalc F8.0 Walc F8.0 health F8.0
absences F8.0 G1 F8.0 G2 F8.0 G3 F8.0.
1148 0 M> famrel F8.0 freetime F8.0 goout F8.0 Dalc F8.0 Walc F8.0 health F
8.0 absences F8.0 G1 F8.0 G2 F8.0 G3 F8.0.
1149 0 DATASET NAME ReverseCodingLikertItemsData.
1149 0 M> DATASET NAME ReverseCodingLikertItemsData.
1150 0 COMPUTE subject_id=$CASENUM.
1150 0 M> COMPUTE subject_id=$CASENUM.
1151 0 COMPUTE Dalc_R=6-Dalc.
1151 0 M> COMPUTE Dalc_R=6-Dalc.
1152 0 COMPUTE Walc_R=6-Walc.
1152 0 M> COMPUTE Walc_R=6-Walc.
```

Reverse Coding Likert Items

```
1153 0  COMPUTE scale_score=MEAN.6(famrel,freetime,goout,Dalc_R,Walc_R,health
).
1153 0 M>  COMPUTE scale_score=MEAN.6(famrel,freetime,goout,Dalc_R,Walc_R,hea
lth).
1154 0  RECODE sex ('F'=1) ('M'=2) INTO sex_code.
1154 0 M>  RECODE sex ('F'=1) ('M'=2) INTO sex_code.
1155 0  RECODE school ('GP'=1) ('MS'=2) INTO school_code.
1155 0 M>  RECODE school ('GP'=1) ('MS'=2) INTO school_code.
1156 0  RECODE higher internet ('no'=0) ('yes'=1) INTO higher_code internet_c
ode.
1156 0 M>  RECODE higher internet ('no'=0) ('yes'=1) INTO higher_code interne
t_code.
1157 0  EXECUTE.
1157 0 M>  EXECUTE.
1158 0
1158 0 M>
1159 0  * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
1159 0 M>  * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
1160 0  TITLE 'Reverse Coding Likert Items'.
1160 0 M>  TITLE 'Reverse Coding Likert Items'.
```

Reverse Coding Likert Items

1161 0 SUBTITLE 'One-to-five reversal with identity and range checks'.

1161 0 M> SUBTITLE 'One-to-five reversal with identity and range checks'.

Reverse Coding Likert Items
One-to-five reversal with identity and range checks

```

1162  0  COMPUTE Dalc_reverse_check=6-Dalc.
1162  0 M>  COMPUTE Dalc_reverse_check=6-Dalc.
1163  0  COMPUTE Walc_reverse_check=6-Walc.
1163  0 M>  COMPUTE Walc_reverse_check=6-Walc.
1164  0  COMPUTE identity_failure=(Dalc+Dalc_reverse_check<>6 OR Walc+Walc_rev
erse_check<>6).
1164  0 M>  COMPUTE identity_failure=(Dalc+Dalc_reverse_check<>6 OR Walc+Walc_
reverse_check<>6).
1165  0  COMPUTE range_failure=(Dalc_reverse_check<1 OR Dalc_reverse_check>5 O
R Walc_reverse_check<1 OR Walc_reverse_check>5).
1165  0 M>  COMPUTE range_failure=(Dalc_reverse_check<1 OR Dalc_reverse_check>
5 OR Walc_reverse_check<1 OR Walc_reverse_check>5).
1166  0  FREQUENCIES VARIABLES=Dalc Walc Dalc_reverse_check Walc_reverse_check
identity_failure range_failure /BARChart FREQ.
1166  0 M>  FREQUENCIES VARIABLES=Dalc Walc Dalc_reverse_check Walc_reverse_ch
eck identity_failure range_failure /BARChart FREQ.

```

Frequencies

Notes

Output Created		18-JUL-2026 13:22:13
Comments		
Input	Data	D:\DATA ANALYSIS\IM Survey and Likert Scale Analysis\Reverse Coding Likert Items\dataset.csv
	Active Dataset	ReverseCodingLikertItems Data
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data.

Reverse Coding Likert Items
One-to-five reversal with identity and range checks

Notes

Syntax		FREQUENCIES VARIABLES=Dalc Walc Dalc_reverse_check Walc_reverse_check identity_failure range_failure /BARCHART FREQ.
Resources	Processor Time	00:00:01.80
	Elapsed Time	00:00:01.68

[ReverseCodingLikertItemsData]

Statistics

		Dalc	Walc	Dalc_reverse_c heck	Walc_reverse_ check	identity_failure
N	Valid	649	649	649	649	649
	Missing	0	0	0	0	0

Statistics

		range_failure
N	Valid	649
	Missing	0

Frequency Table

Dalc

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	451	69.5	69.5	69.5
	2	121	18.6	18.6	88.1
	3	43	6.6	6.6	94.8
	4	17	2.6	2.6	97.4
	5	17	2.6	2.6	100.0
	Total	649	100.0	100.0	

Reverse Coding Likert Items
One-to-five reversal with identity and range checks

Walc

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	247	38.1	38.1	38.1
	2	150	23.1	23.1	61.2
	3	120	18.5	18.5	79.7
	4	87	13.4	13.4	93.1
	5	45	6.9	6.9	100.0
	Total	649	100.0	100.0	

Dalc_reverse_check

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	17	2.6	2.6	2.6
	2.00	17	2.6	2.6	5.2
	3.00	43	6.6	6.6	11.9
	4.00	121	18.6	18.6	30.5
	5.00	451	69.5	69.5	100.0
	Total	649	100.0	100.0	

Walc_reverse_check

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	45	6.9	6.9	6.9
	2.00	87	13.4	13.4	20.3
	3.00	120	18.5	18.5	38.8
	4.00	150	23.1	23.1	61.9
	5.00	247	38.1	38.1	100.0
	Total	649	100.0	100.0	

identity_failure

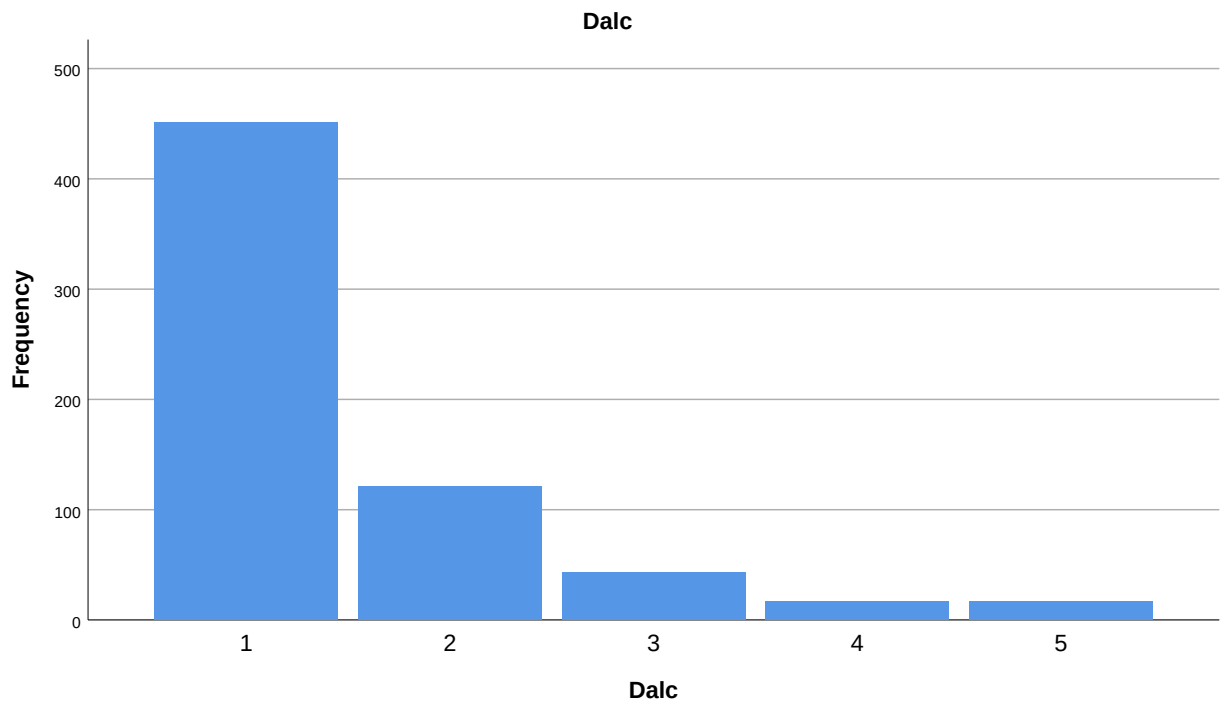
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	649	100.0	100.0	100.0

Reverse Coding Likert Items
One-to-five reversal with identity and range checks

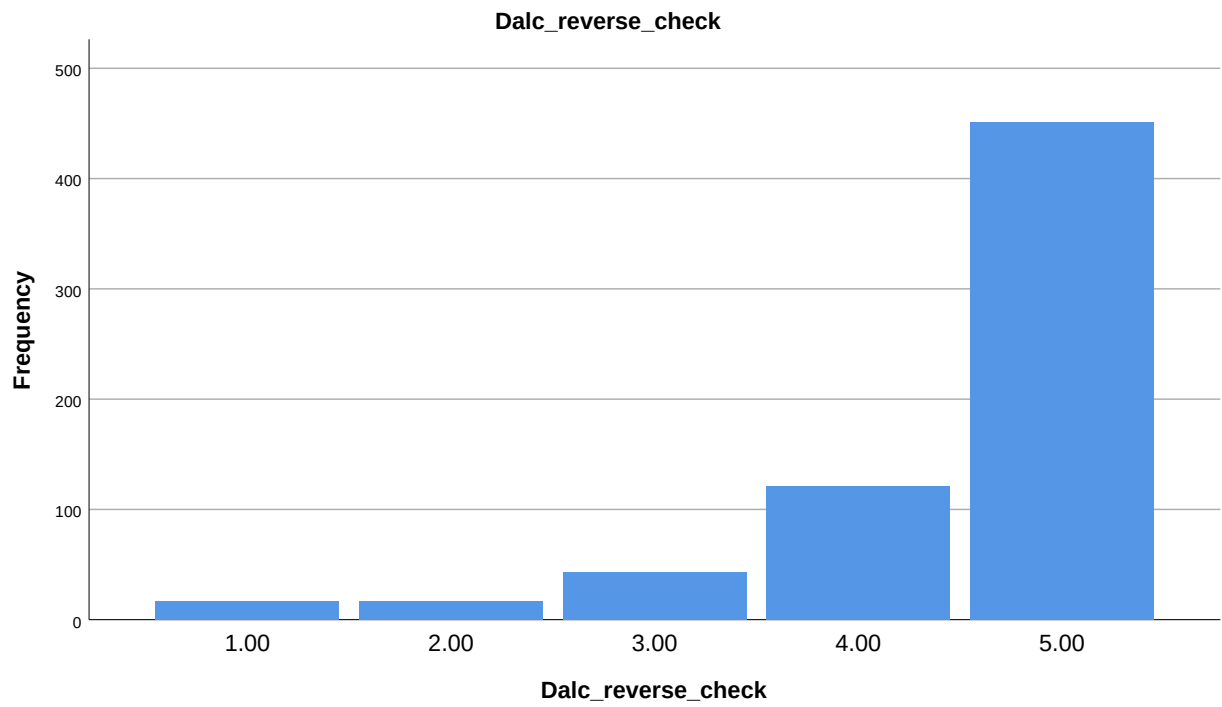
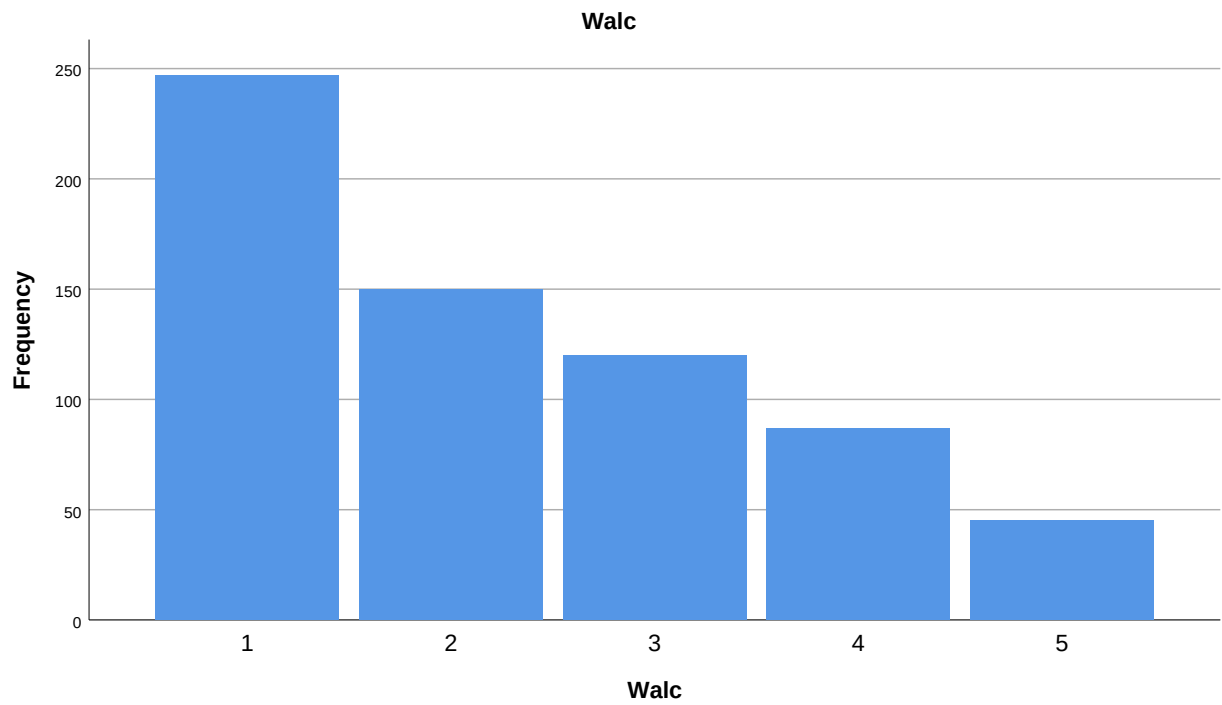
range_failure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	649	100.0	100.0	100.0

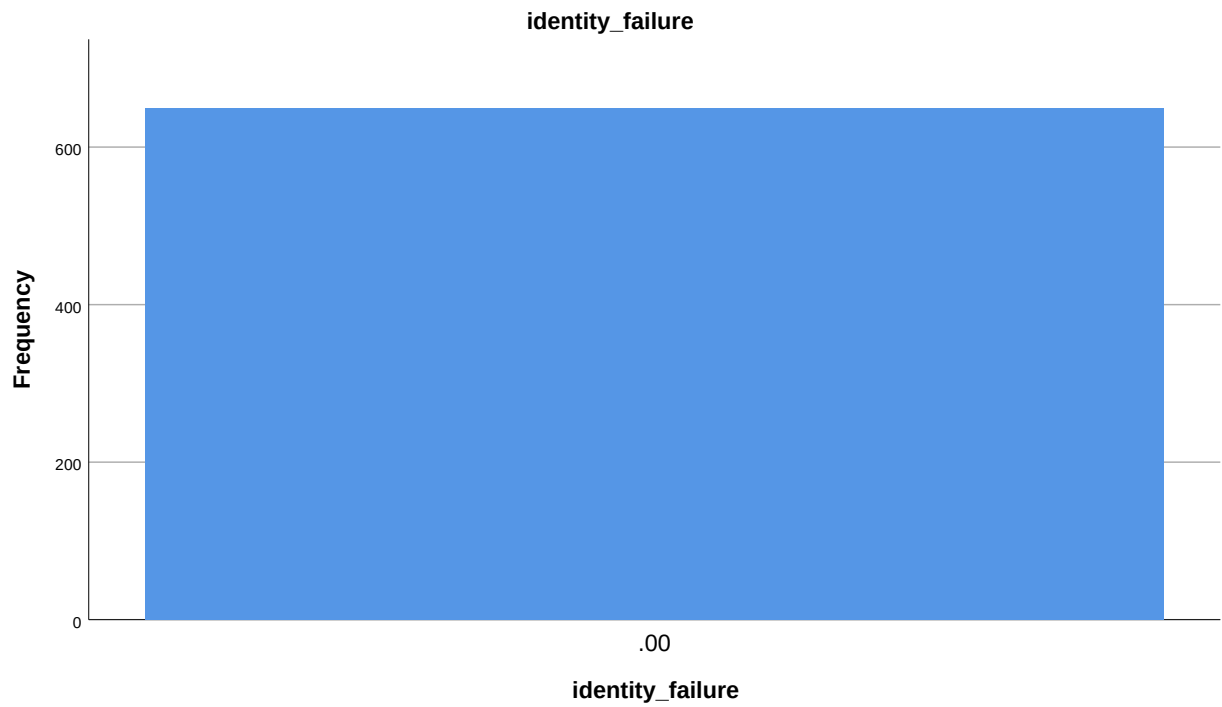
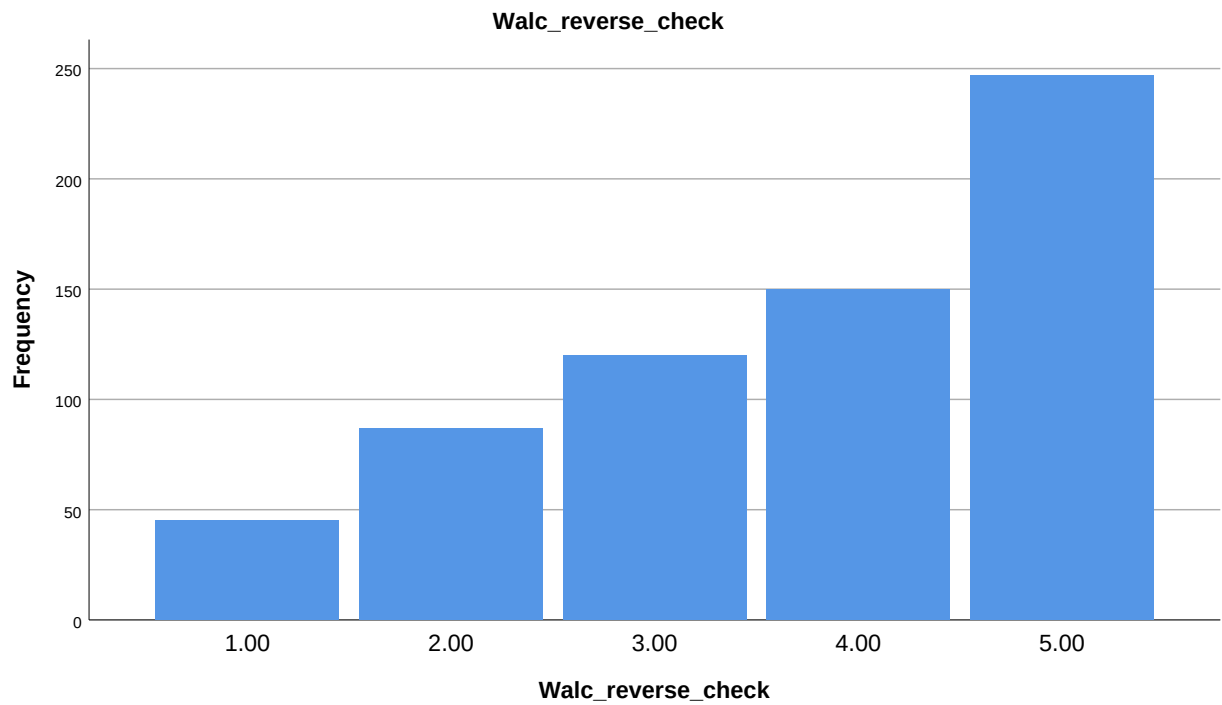
Bar Chart



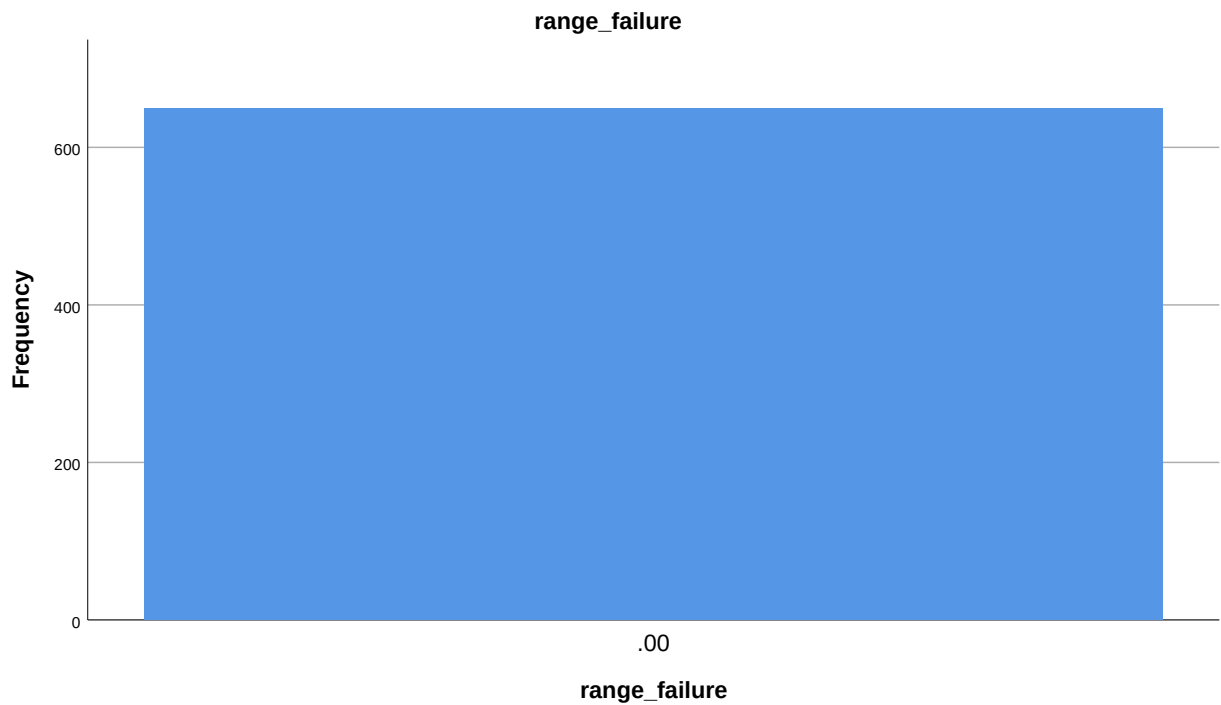
Reverse Coding Likert Items
One-to-five reversal with identity and range checks



Reverse Coding Likert Items
One-to-five reversal with identity and range checks



Reverse Coding Likert Items
One-to-five reversal with identity and range checks



```
1167  0  DESCRIPTIVES VARIABLES=Dalc Walc Dalc_reverse_check Walc_reverse_chec
k /STATISTICS=MEAN STDDEV MIN MAX.
1167  0 M> DESCRIPTIVES VARIABLES=Dalc Walc Dalc_reverse_check Walc_reverse_c
heck /STATISTICS=MEAN STDDEV MIN MAX.
```

Descriptives

Reverse Coding Likert Items
One-to-five reversal with identity and range checks

Notes

Output Created		18-JUL-2026 13:22:15
Comments		
Input	Data	D:\DATA ANALYSIS\ISM Survey and Likert Scale Analysis\Reverse Coding Likert Items\dataset.csv
	Active Dataset	ReverseCodingLikertItems Data
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	All non-missing data are used.
Syntax		DESCRIPTIVES VARIABLES=Dalc Walc Dalc_reverse_check Walc_reverse_check /STATISTICS=MEAN STDDEV MIN MAX.
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.03

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Dalc	649	1	5	1.50	.925
Walc	649	1	5	2.28	1.284
Dalc_reverse_check	649	1.00	5.00	4.4977	.92483
Walc_reverse_check	649	1.00	5.00	3.7196	1.28438
Valid N (listwise)	649				

1168 0 ECHO 'Reverse coding changes direction while preserving the one-to-five domain'.

Reverse Coding Likert Items
One-to-five reversal with identity and range checks

```
1168 0 M> ECHO 'Reverse coding changes direction while preserving the one-to-
-five domain'.
Reverse coding changes direction while preserving the one-to-five domain
1169 0 * END METHOD-SPECIFIC SPSS WORKFLOW.
1169 0 M> * END METHOD-SPECIFIC SPSS WORKFLOW.
1170 0
1170 0 M>
1171 0 SAVE OUTFILE='D:\DATA ANALYSIS\M Survey and Likert Scale Analysis\Rev
erse Coding Likert Items\SPSS_Output\sav\reverse-codin
g-likert-items_spss_ready_data.sav' /COMPRESSED.
1171 0 M> SAVE OUTFILE='D:\DATA ANALYSIS\M Survey and Likert Scale Analysis\
Reverse Coding Likert Items\SPSS_Output\sav\reverse-co
ding-likert-items_spss_ready_data.sav' /COMPRESSED.
1172 0
1172 0 M>
1173 0 ECHO '=====
====='.
1173 0 M> ECHO '=====
====='.
=====
1174 0 ECHO 'REVERSE CODING LIKERT ITEMS'.
1174 0 M> ECHO 'REVERSE CODING LIKERT ITEMS'.
REVERSE CODING LIKERT ITEMS
1175 0 ECHO 'Method type: scoring_workflow'.
1175 0 M> ECHO 'Method type: scoring_workflow'.
Method type: scoring_workflow
1176 0 ECHO 'Design: Reverse coding of two 1-to-5 items with range, sum-iden
tity, and distribution checks.'.
1176 0 M> ECHO 'Design: Reverse coding of two 1-to-5 items with range, sum-i
dentity, and distribution checks.'.
Design: Reverse coding of two 1-to-5 items with range, sum-identity, and distr
ibution checks.
1177 0 ECHO 'Inference scope: No hypothesis test is required; every reverse-
coded value must satisfy original+reversed=6 and remai
n in 1..5.'.
1177 0 M> ECHO 'Inference scope: No hypothesis test is required; every rever
se-coded value must satisfy original+reversed=6 and re
main in 1..5.'.
```

Reverse Coding Likert Items
One-to-five reversal with identity and range checks

Inference scope: No hypothesis test is required; every reverse-coded value must satisfy $\text{original} + \text{reversed} = 6$ and remain in 1..5.

1178 0 ECHO 'Formula: reversed=(minimum+maximum)-original=6-original.'

1178 0 M> ECHO 'Formula: reversed=(minimum+maximum)-original=6-original.'
Formula: reversed=(minimum+maximum)-original=6-original.

1179 0 ECHO 'Variables: Dalc, Walc'.

1179 0 M> ECHO 'Variables: Dalc, Walc'.

Variables: Dalc, Walc

1180 0 ECHO 'Rows analyzed: 649'.

1180 0 M> ECHO 'Rows analyzed: 649'.

Rows analyzed: 649

1181 0 ECHO 'dalc_original_mean = 1.50231124807396'.

1181 0 M> ECHO 'dalc_original_mean = 1.50231124807396'.
dalc_original_mean = 1.50231124807396

1182 0 ECHO 'dalc_reversed_mean = 4.49768875192604'.

1182 0 M> ECHO 'dalc_reversed_mean = 4.49768875192604'.
dalc_reversed_mean = 4.49768875192604

1183 0 ECHO 'identity_check_failures = 0'.

1183 0 M> ECHO 'identity_check_failures = 0'.
identity_check_failures = 0

1184 0 ECHO 'items_reversed = 2'.

1184 0 M> ECHO 'items_reversed = 2'.
items_reversed = 2

1185 0 ECHO 'range_check_failures = 0'.

1185 0 M> ECHO 'range_check_failures = 0'.
range_check_failures = 0

1186 0 ECHO 'rows_processed = 649'.

1186 0 M> ECHO 'rows_processed = 649'.
rows_processed = 649

1187 0 ECHO 'walc_original_mean = 2.280431432973806'.

1187 0 M> ECHO 'walc_original_mean = 2.280431432973806'.
walc_original_mean = 2.280431432973806

1188 0 ECHO 'walc_reversed_mean = 3.719568567026194'.

1188 0 M> ECHO 'walc_reversed_mean = 3.719568567026194'.
walc_reversed_mean = 3.719568567026194

1189 0 ECHO 'Cross-check status: pass'.

1189 0 M> ECHO 'Cross-check status: pass'.
Cross-check status: pass

Reverse Coding Likert Items
One-to-five reversal with identity and range checks

```
1190  0  ECHO '=====
====='.
1190  0 M>  ECHO '=====
====='.
=====
1191  0
1191  0 M>
1192  0  OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\M Survey and Likert Scale Analy
sis\Reverse Coding Likert Items\SPSS_Output\spv\revers
e-coding-likert-items_spss_output.spv'.
1192  0 M>  OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\M Survey and Likert Scale An
alysis\Reverse Coding Likert Items\SPSS_Output\spv\rev
erse-coding-likert-items_spss_output.spv'.
1193  0  OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=PRI
NTSETTING
1193  0 M>  OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=
PRINTSETTING
```