

ESTABLISHING TEST-RETEST RELIABILITY AND INTERNAL CONSISTENCY OF THE OCCUPATIONAL RESILIENCE MEASURE

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BACKGROUND

The concept of occupational resilience originated during Dr. Muriithi's phenomenological study of refugee musicians, which aimed to explore the relationship between music and individuals' health/well-being.

The musicians were very persistent in performing music, despite facing many environmental, linguistic, and cultural barriers.

Most refugees were working low wage jobs, spoke limited English, and performed music that was not valued or appreciated in American culture.

Began exploring why these individuals were so persistent in performing music when there appeared to be little reward involved.

Led to searching for an occupational therapy term that describes this phenomenon, only to find there isn't one

REVIEW OF RESILIENCE LITERATURE

1. Resilience is prevalent in:

Psychology
Psychiatry
Philosophy
Biology
Ecology
Public health
Neuroscience

*“positive adaptation, or the ability to maintain or regain mental health, despite experiencing adversity”
(Herrman et al., 2011, p. 259)*

“An individual was then deemed resilient or not, only by assessing an absence or presence of psychopathology and disorder within him or her upon experiencing adversity” (Métais et al., 2022, p. 99)

2. Resilience is attributed to:

Individuals
Families
Communities
Health care systems
Government systems
Ecosystems

“must be considered in the context of designated risk, threat, or disturbance to development”, where risk is understood as a factor that elevates the probability of a negative outcome (Stallworthy & Masten, 2022)

*“the capacity to adapt to challenges and changes at different system levels, to maintain high quality care”
(Wiig et al., 2020)*

GAPS IN OT THEORY

Inconsistent application of fundamental theories and constructs.

Often overlooked but is very problematic because each has unique practice implications.

- Uses *performance*, *participation*, and *engagement* interchangeably
- Performance focuses on quality in outcomes, while participation is more inclusive and leaves less room for judgement, yet participation is only one facet of engagement, since people can engage in occupations without actually doing them.

Analyzed:

OA – presents optimal opportunities for mastery ☐ ‘positive adaptation’ always good

CMOP-E – promotes optimal performance (performance implies quality)

PEO-P – enables participation in meaningful occupations (meaningful implies healthy)

MOHO – helps identify areas of occupational dysfunction to *increase* engagement

None truly embrace OTs role in *reducing* engagement in occupations that denote poor health or contribute to occupational imbalance in the way occupational resilience does.

NEEDS ASSESSMENT

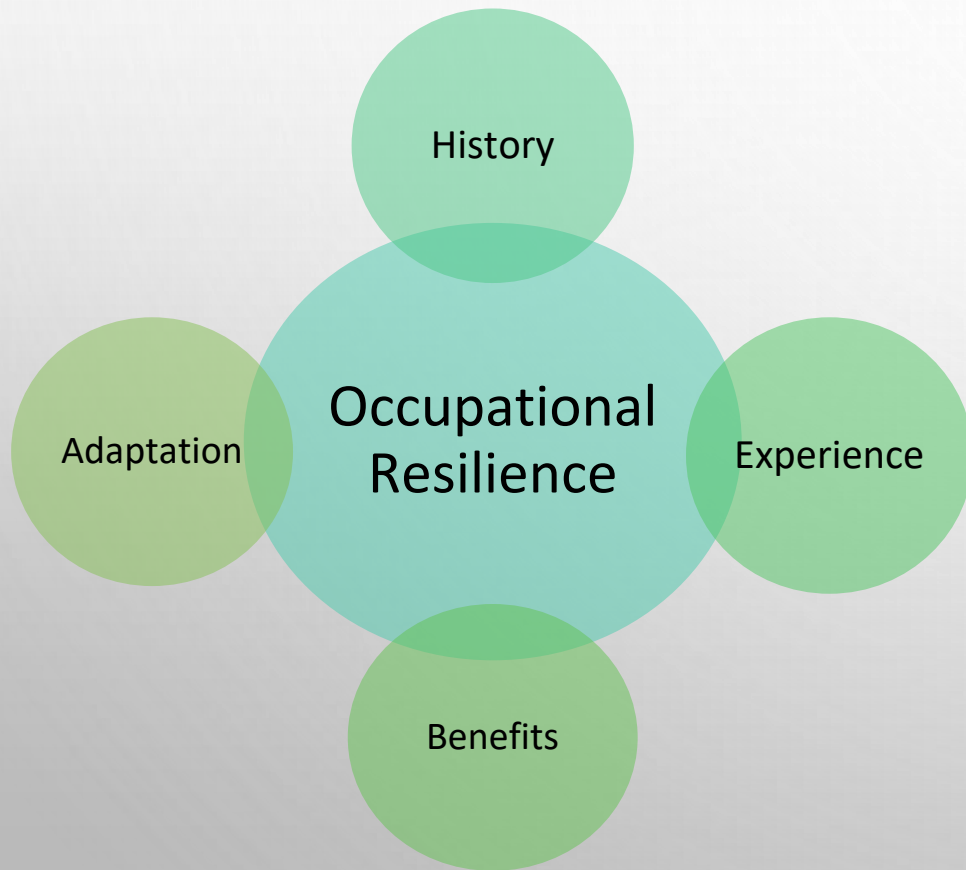
*“All of the current models used in occupational therapy that are foundational to **assessment and intervention** emphasize the importance of occupational performance as the outcome, with little attention paid to the health and well-being of individuals.” (Pizzi & Richards, 2017)*

- Avoids addressing occupations that inhibit health (denote negative outcomes)
- Uses fundamental constructs interchangeably, requiring more clarification on resilience
 - Favors terms like *adaptation, coping, growth, and persistence* over resilience
- Aims to *increase, promote, and enable* occupational performance, engagement, and participation
 - High demand for objective measures and standardized assessment tools
- Research demonstrates that resilience can be enhanced by interventions, and that behaviors associated with resilience can be learned (Connor & Davidson, 2003; Killgore et al., 2020)

OCCUPATIONAL RESILIENCE CONSTRUCT

“The capacity for persistence in the performance of an occupation, whereby capacity is reflected in both duration and intensity of engagement in a specified occupation”

(Muriithi et al., 2022)



“Occupation is an abstract form and its enactments in real life, interpreted as meaningful by the individuals or groups of people involved”

“Resilience is the ability to bounce back, enabling one to maintain positive health and wellbeing despite experiencing adversity”

(Muriithi & Muriithi, 2021)

OCCUPATIONAL RESILIENCE FRAMEWORK

Classifies occupations into 2 categories:

Health-promoting:

Contributes to positive health outcomes and overall well being

Health-inhibiting:

Contributes to negative health outcomes and overall well being

Challenges occupational therapy's current view of 'meaningful'

The meaningfulness of an occupation does not correlate to the healthiness of an occupation

Occupational therapy should not aim to increase engagement in all meaningful occupations.

The reason an occupation is perceived as meaningful should be explored more - *how is the occupation being applied in one's life?*

OCCUPATIONAL RESILIENCE FRAMEWORK

Defining Features:

- Is a continuum, not a dichotomy
- Reflects positive and negative values
- Occupation-centered
- Denotes positive or negative health outcomes

Assumptions:

- Modifiable through intervention
- Influenced by environment and context
- Influences performance of other occupations
- Affects health, wellbeing, and quality of life

(Muriithi et al., 2022)

OCCUPATIONAL RESILIENCE MEASURE (ORM 1.0)

The primary assessment tool for measuring occupational resilience

20-item self-report questionnaire

Designed to support occupational therapy interventions in clients whose occupational resilience is a concern.

Occupations selected for the ORM should be occupations that:

- The client has difficulty sustaining performance in over time
- Require excessive time, money, resources, or effort
- Inhibit health and performance of other occupations
- The client want to increase or decrease performance in
- The client finds difficult to give up

History	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I have done this occupation for a long period of time over my lifetime	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
This occupation is a very essential part of my identity	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
It is inconceivable that I would give up this occupation in the future	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Performing this occupation is a very prominent part of my personal and/ or family history	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
This is one of my most important go-to occupations when facing life challenges	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Experience	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I have a lot of experience doing this occupation	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
I can do this occupation very well without putting much effort into it	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
I am known for being very persistent in this occupation	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
I do this occupation whether other people like it or not	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
I am highly skilled, talented, or proficient in this occupation	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Benefits	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
This occupation has greatly helped to meet my financial or material needs	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
This occupation has greatly helped me to improve physical health	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
This occupation has greatly helped me to make friends and stay connected with other people	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
This occupation has greatly helped me to reduce stress or anxiety	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
This occupation has greatly helped me to feel better about my life	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
This occupation has greatly helped me to find meaning or purpose in life	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Adaptation	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I find ways to do this occupation even when facing serious financial challenges	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
I find ways to do this occupation even when feeling very physically or emotionally unwell	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
I find ways to do this occupation even in very challenging physical environments	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
I find ways to do this occupation even when time is very limited	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Occupational Resilience Measure Score Sheet

Client's Pseudonym: _____	Age: _____	Gender: <input type="checkbox"/> M <input type="checkbox"/> F
Assessor's Name: _____	Designation: _____	Date: _____

	Subscale	Scores
Occupation 1: _____	History	
Notes: _____	Experience	
_____	Benefits	
_____	Adaptation	
_____	Total:	

	Subscale	Scores
Occupation 2: _____	History	
Notes: _____	Experience	
_____	Benefits	
_____	Adaptation	
_____	Total:	

	Subscale	Scores
Occupation 3: _____	History	
Notes: _____	Experience	
_____	Benefits	
_____	Adaptation	
_____	Total:	

	Subscale	Scores
Occupation 4: _____	History	
Notes: _____	Experience	
_____	Benefits	
_____	Adaptation	
_____	Total:	

INTERPRETING SCORES

Low resilience in health-promoting occupations:

- Bad. Client would likely benefit from interventions designed to increase occupational resilience for that occupation.

Low resilience in health-inhibiting occupations:

- Good. Not likely an occupation that requires much intervention. However, this can change over time

Mix of very high and very low scores:

- Would benefit from intervention designed to increase resilience in health promoting occupations, and to decrease resilience in health inhibiting occupations. Goal would be to facilitate occupational balance

High resilience a health-promoting occupations:

- Good, unless scores in other health promoting occupations are significantly lower.

High resilience in health-inhibiting occupations:

- Bad. Is likely decreasing resilience and inhibiting performance of other health promoting occupations.
- Client would benefit from interventions designed to decrease occupational resilience for that occupation.

OCCUPATIONAL RESILIENCE INDIVIDUAL PERCEPTION SCALE (ORIPS)

Measures clients' self-perceived resilience in each occupation identified for the ORM.

Self-report measure using a 10-point Likert scale

“I have repeatedly overcome barriers and engaged in this occupation over long periods of my lifetime”

Occupational Resilience Individual Perception Scale (ORIPS)

Client's Name	Age	Gender: <input type="checkbox"/> M <input type="checkbox"/> F
Assessor's Name	Date	

For each occupation you identified in the ORM, please select the number that indicates the degree to which you agree or disagree with the statement:

Occupation 1: _____

“I have repeatedly overcome barriers and engaged in this occupation over long periods of my lifetime”

Strongly Disagree					Neutral					Strongly Agree
<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<input type="checkbox"/> 8	<input type="checkbox"/> 9	<input type="checkbox"/> 10

Occupation 2: _____

“I have repeatedly overcome barriers and engaged in this occupation over long periods of my lifetime”

Strongly Disagree					Neutral					Strongly Agree
<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<input type="checkbox"/> 8	<input type="checkbox"/> 9	<input type="checkbox"/> 10

Occupation 3: _____

“I have repeatedly overcome barriers and engaged in this occupation over long periods of my lifetime”

Strongly Disagree					Neutral					Strongly Agree
<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<input type="checkbox"/> 8	<input type="checkbox"/> 9	<input type="checkbox"/> 10

Occupation 4: _____

“I have repeatedly overcome barriers and engaged in this occupation over long periods of my lifetime”

Strongly Disagree					Neutral					Strongly Agree
<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<input type="checkbox"/> 8	<input type="checkbox"/> 9	<input type="checkbox"/> 10

STUDY OBJECTIVES

1. Recruit and enroll between 50 to 200 participants to take part in the study.
2. Administer the ORM and ORIPS to each participant twice within a two-to three-week testing interval.
3. Complete a thorough statistical analysis of reliability.
4. Compose a paper describing the process and outcomes of this study.

DESIGN & METHODS

Test-retest design

- Quantitative

Inclusion criteria:

- English-speaking
- 18+ years old
- Able to provide written informed consent

Exclusion criteria:

- Unable to complete terms of enrollment

Sampling method

- Snowball (chain-referral)
 - Time efficient
 - Cost-effective
 - Gradual process

PROCEDURES

- Virtual correspondence using encryption software and password-protected meetings
- Testing was conducted either in-person or virtually
- Tests were administered to participants independently, no group administration
- Written and verbal informed consent was obtained prior to beginning testing
- Scores were not discussed with participants
- Notes recorded on score sheet to reflect relative comments made during testing
- Classified occupations based on input and discussion with participants
- Names de-identified using pseudonyms
- Data recorded on password-protected PC in a folder with restricted access

QUANTITATIVE DATA ANALYSIS

Conducted using SPSS version 28, under the consultation of Dr. Curt Bay

Reliability	Descriptive Statistics	Correlations
Cronbach's alpha	Mean	Paired samples <i>t</i> -test
	Range	
Intraclass Correlation Coefficients (ICC)	Standard Deviation	Pearson Correlation
	Frequencies	

RESULTS

Descriptive Statistics

N = 94

Range: 19-66 years old

Mean: 32.46

Standard Deviation: 12.25

Frequency Statistics by Gender and Occupation Type

	Occupations	<i>n</i>	%
Male		41	43.6
	Positive	130	91.5
	Negative	12	8.5
	Total	142	41.8
Female		53	56.4
	Positive	175	88.4
	Negative	23	11.6
	Total	198	58.2

Note. Positive = health-promoting; Negative = health-inhibiting.

RESULTS

Descriptive Statistics of ORIPS, ORM, and ORM Subscales

	N	Minimum	Maximum	Mean	Std. Deviation
ORIPS_1	340	0	10	7.35	2.384
ORIPS_2	340	0	10	7.50	2.389
History_1	340	7	25	18.80	4.363
History_2	340	5	25	18.99	4.422
Experience_1	340	6	25	20.14	4.320
Experience_2	340	7	25	20.34	4.170
Benefits_1	340	6	30	20.75	4.881
Benefits_2	340	6	30	20.88	4.909
Adaptation_1	340	4	25	14.32	4.328
Adaptation_2	340	4	25	14.16	4.225
ORMScore_1	340	34	100	74.01	13.114
ORMScore_2	340	32	100	74.38	13.639
Valid N (listwise)	340				

Note:

1 = initial

2 = retest

RESULTS

Reliability:

- ICCs
- Reflect degree of correlation and agreement between measures

Internal consistency of ORM

Cronbach's alphas

- .711 initial
- .768 retest

Intraclass Correlation Coefficients for ORM Scores, ORIPS Scores, and ORM Subscales

Scale	ICC Model	Intraclass Correlation ^b	95% CI	
			<i>LL</i>	<i>UL</i>
ORM	Single Measures	.875 ^a	0.848	0.898
History	Single Measures	.832 ^a	0.796	0.862
Experience	Single Measures	.862 ^a	0.832	0.887
Benefits	Single Measures	.852 ^a	0.819	0.878
Adaptation	Single Measures	.748 ^a	0.698	0.792
ORIPS	Single Measures	.734 ^a	0.680	0.779

Note. Two-way random effects model where both people effects and measures effects are random; CI = confident interval; *LL* = lower limit; *UL* = upper limit.

^a The estimator is the same whether the interaction effect is present or not.

^b Refers to type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

RESULTS

Correlation between age and gender

1 = initial test scores

2 = retest scores

Correlation is significant at the 0.05 level

- 2-tailed

One weak correlation between age and history

subscale retest scores.

Data Correlations of Age & Gender

Scale		Gender	Age
ORIPS 1	Pearson Correlation	-0.066	0.025
	Sig. (2-tailed)	0.226	0.647
	N	340	340
ORIPS 2	Pearson Correlation	-0.026	0.002
	Sig. (2-tailed)	0.632	0.964
	N	340	340
History 1	Pearson Correlation	-0.012	0.082
	Sig. (2-tailed)	0.824	0.134
	N	340	340
History 2	Pearson Correlation	-0.002	.109*
	Sig. (2-tailed)	0.964	0.045
	N	340	340
Experience 1	Pearson Correlation	0.001	-0.002
	Sig. (2-tailed)	0.979	0.973
	N	340	340
Experience 2	Pearson Correlation	0.020	0.013
	Sig. (2-tailed)	0.715	0.808
	N	340	340
Benefits 1	Pearson Correlation	-0.033	-0.053
	Sig. (2-tailed)	0.543	0.330
	N	340	340
Benefits 2	Pearson Correlation	-0.032	-0.062
	Sig. (2-tailed)	0.559	0.255
	N	340	340
Adaptation 1	Pearson Correlation	0.048	0.022
	Sig. (2-tailed)	0.373	0.682
	N	340	340
Adaptation 2	Pearson Correlation	0.075	0.046
	Sig. (2-tailed)	0.165	0.394
	N	340	340
ORM 1	Pearson Correlation	0.000	0.014
	Sig. (2-tailed)	0.998	0.795
	N	340	340
ORM 2	Pearson Correlation	0.017	0.031
	Sig. (2-tailed)	0.752	0.564
	N	340	340

RESULTS

Pearson correlations

- Significant at the 0.01 level
 - 2-tailed

Both strong correlations.
Slightly stronger correlation
with retest scores, same
degree of significance

Raw Data Correlations of ORIPS & ORM

Correlations for Analysis 1				
		ORIPS- 1	ORM- 1	
ORIPS- 1	Pearson Correlation	1	.606**	
	Sig. (2-tailed)		0.000	
	<i>N</i>	340	340	
ORM- 1	Pearson Correlation	.606**	1	
	Sig. (2-tailed)	0.000		
	<i>N</i>	340	340	
Correlations for Analysis 2				
		ORIPS- 2	ORM- 2	
ORIPS- 2	Pearson Correlation	1	.640**	
	Sig. (2-tailed)		0.000	
	<i>N</i>	340	340	
ORM- 2	Pearson Correlation	.640**	1	
	Sig. (2-tailed)	0.000		
	<i>N</i>	340	340	

RESULTS

Pearson correlations

- Significant at the 0.01 level

Stronger positive correlation between test-retest scores for health-promoting occupations

Correlations of Health-Promoting Occupations

Correlations for Analysis 1^a			
		ORIPS- 1	ORM- 1
ORIPS- 1	Pearson Correlation	1	.628**
	Sig. (2-tailed)		0.000
	<i>n</i>	305	305
ORM- 1	Pearson Correlation	.628**	1
	Sig. (2-tailed)	0.000	
	<i>n</i>	305	305
Correlations for Analysis 2^a			
		ORIPS- 2	ORM- 2
ORIPS- 2	Pearson Correlation	1	.669**
	Sig. (2-tailed)		0.000
	<i>n</i>	305	305
ORM- 2	Pearson Correlation	.669**	1
	Sig. (2-tailed)	0.000	
	<i>n</i>	305	305

RESULTS

Pearson correlations

- Significant at the 0.01 level
 - 2-tailed

Moderate-strong positive correlations for health-inhibiting occupations – possibly lower values due to smaller sample

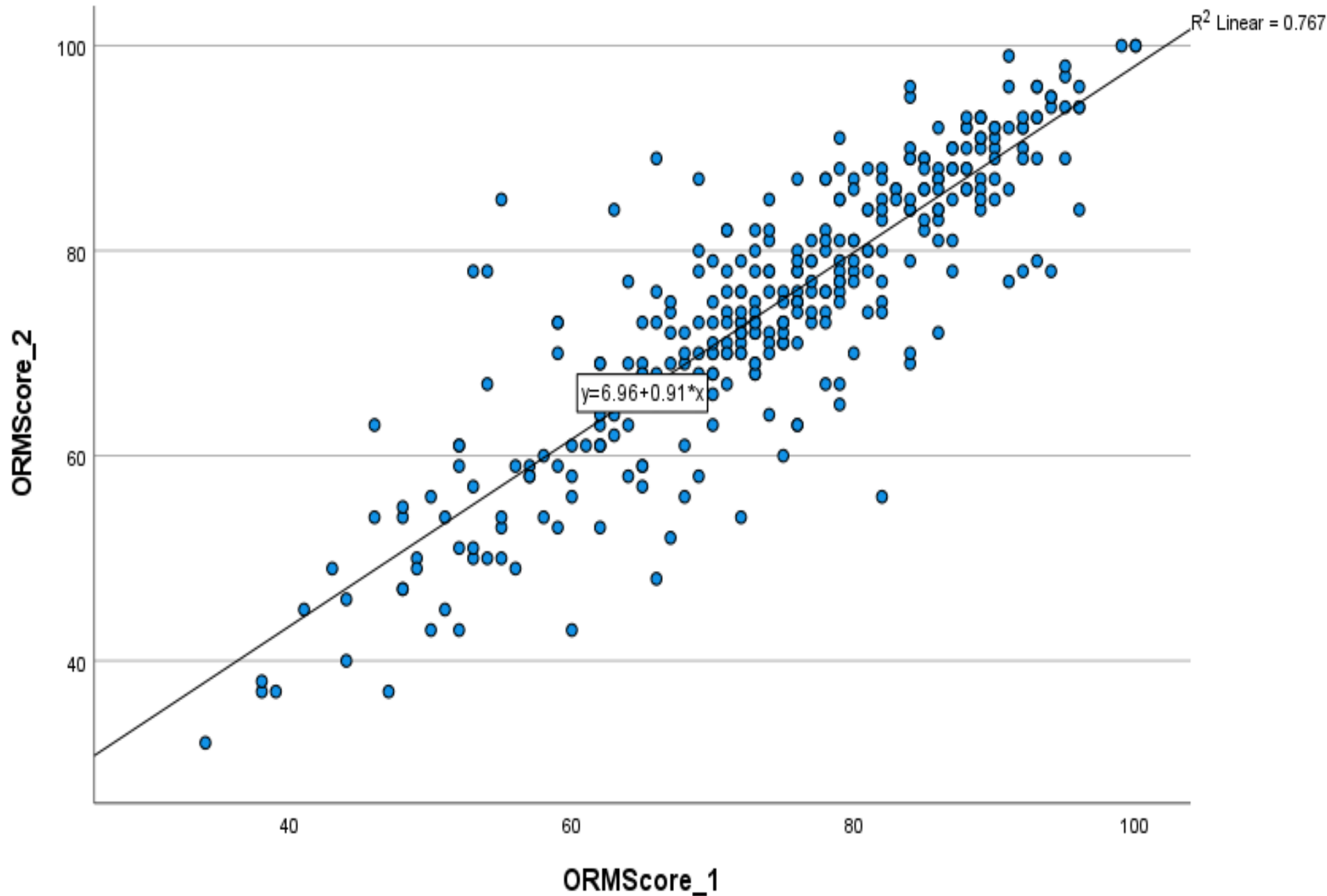
Correlations of Health-Inhibiting Occupations

Correlations for Analysis 1^a					
		ORIPS- 1	ORM- 1		
ORIPS- 1	Pearson Correlation	1	.515**		
	Sig. (2-tailed)		0.002		
	<i>n</i>	35	35		
ORM- 1	Pearson Correlation	.515**	1		
	Sig. (2-tailed)	0.002			
	<i>n</i>	35	35		
Correlations for Analysis 2^a					
		ORIPS- 2	ORM- 2		
ORIPS- 2	Pearson Correlation	1	.475**		
	Sig. (2-tailed)		0.004		
	<i>n</i>	35	35		
ORM- 2	Pearson Correlation	.475**	1		
	Sig. (2-tailed)	0.004			
	<i>n</i>	35	35		

RESULTS

Correlation Scatterplot:

Shows the correlation
between ORM test-
retest scores



RESULTS

Paired-samples *t*-test :

Compares the means between two sets of data (ORM test-retest raw data scores)

Assesses the degree of difference between the sets of data

The *t* value \square size of the difference between mean values

p value \square how reliable it is

Mean: -0.374

T(339) = -1.031

2-sided P value = .303

Significant at <.001

DISCUSSION

- The ORM demonstrated sound psychometric properties
 - Good test-retest reliability and internal consistency
- ORIPS demonstrated good test-retest reliability
 - Showed a strong positive correlation to ORM scores
- No significant differences in resilience scores between men and women
- Analysis showed positive correlations for all tests and subscales
- ORIPS is correlated with ORM scores
- Reliable when administered in various testing environments

IMPLICATIONS

- ORIPS is appropriate to use to as a quick measurement to gauge clients' resilience in specific occupations
 - ORM should still be completed to better direct interventions by analyzing specific areas where resilience is of concern (subscales)
- Can be used outside of the clinical setting (telehealth, home health)
 - Potential for utility in preventative care, primary care, health promotion, public health, and other settings not based on a medical model.
- Can be administered in diverse testing environments
 - Telehealth, home health

LIMITATIONS

- Relatively small, non-random sample of participants
 - A larger random sample would have improved the accuracy of reliability data
- Limited time and access to resources
 - Snowball sampling was most efficient and convenient
- Could not establish all psychometric properties
- Results can only be applied to populations that resemble the sample
 - Limited the generalizability to an adult English-speaking population

RECOMMENDATIONS

- Future studies should establish additional psychometric properties
 - Include multiple raters in study design
- Use different method of recruitment
 - Obtain a larger, randomized sample
- Conduct pre-post intervention measurements
 - Determine if occupational resilience is modifiable
- Develop translated versions of both tests
 - Requires additional psychometric studies
- Incorporate the ORM into clinical trials

CONCLUSION

- The ORM and ORIPS are both reliable assessment tools for measuring occupational resilience in health-promoting and health-inhibiting occupations
- Both tests are reliable to administer to any English-speaking male or female who is at least 18 years old.
- Reliable to use ORM as a pre-post intervention measurement tool
 - Can help measure the efficacy of interventions that aim to modify resilience
- Clinical utility

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QUESTIONS?