

# Can Culture Influence the Strength of Visual Imagery?

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## Introduction

- Studies suggest that females [1,2] and younger individuals [3] may have stronger visual imagery strength than others
- Two types of visual imagery extremes exist:
  - Aphantasia [4]: no or very low imagery
  - Hyperphantasia [2]: extremely vivid imagery
- Prevalence reports:
  - Aphantasia = 2.6% [2], 3.6-4.2% [5]
  - Hyperphantasia = 13.8% [2]
- Aphantasics show reduced imagery in other senses (i.e taste) [6]
- Research Gap:* Lack of cross-cultural data about visual imagery
- Present Study:* Investigates visual imagery strength and prevalence of Aphantasia and Hyperphantasia using a multi-cultural sample: Arabian Gulf (AG), Middle East and North Africa (MENA), South East Asia (SEA), South Asia and WEIRD (western, educated, industrialized, rich, democratic [7])

## Methods

- Recruitment: Online survey (Qualtrics) using Facebook/Instagram
- Participants: All citizens & residents (ages 18-65) of Qatar
- Questionnaires: VVIQ [8] & Psi-Q [9]
- Demographics: Gender, age, education, occupation & nationality

### Example: Vividness of Visual Imagery Questionnaire (VVIQ)

Visualise a rising sun. Consider carefully the picture that comes before your mind's eye. (Rate 1=no image; 5=highly vivid, life-like)

The sun rising above the horizon into a hazy sky \_\_\_\_\_  
The sky clears and surrounds the sun with blueness \_\_\_\_\_  
Clouds. A storm blows up with flashes of lightning \_\_\_\_\_  
A rainbow appears \_\_\_\_\_



### Example: Plymouth Sensory Imagery Questionnaire (Psi-Q)

Imagine the smell of (0 = no image; 10 = highly vivid, life-like):

0 1 2 3 4 5 6 7 8 9 10  
a stuffy room \_\_\_\_\_  
a rose \_\_\_\_\_  
fresh paint \_\_\_\_\_  
newly cut grass \_\_\_\_\_  
burning wood \_\_\_\_\_



## Summary and Discussion

- In contrast to recent reports [1,2,3], imagery strength was similar for different genders and age groups
- Similar prevalence rates of Aphantasia [5] and Hyperphantasia [2] compared to previous reports
- MENA and AG participants reported the lower imagery scores across all sensory modalities
- SEA and WEIRD participants report highest visual imagery
- SEA highest imagery scores across all sensory modalities
- Confirms low visual imagery correlates with lower sensory perception in all modalities [6]
- Why cultural differences for imagery?
  - Research shows an influence of culture on perception [11]
  - Imaging studies show overlap between perception & imagery [12]
  - Perhaps environment (i.e. education) also influences imagery

## References

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## Results

**Participants:** N=636 (73.3% female) : VVIQ: M=58.89,SD=13.89

**Imagery extremes:**

- Aphantasia prevalence (VVIQ=16-32) was 5.0% (n=32); of which 1.4% (n=9) indicated complete Aphantasia (VVIQ=16)
- Hyperphantasia prevalence (VVIQ=75-80) was 12.1% (n=77); of which 2.8% (n=18) indicated maximum VVIQ=80
- There were no imagery differences for gender or age (Figures 1a, 1b)

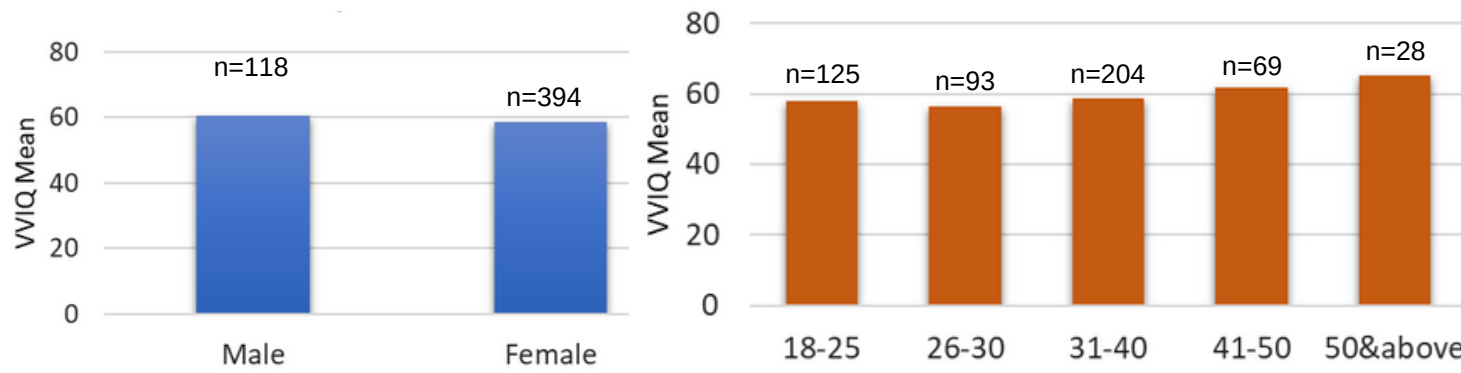


Figure 1a:

VVIQ scores across gender

Figure 1b:

VVIQ scores across age groups

### VVIQ Results Across Cultures (Figure 2):

Participants (n=557) were divided into cultural groups [7,10]

Group (n)	VVIQ MEAN (SD)
MENA (n=86)	55.11 (14.82)*
South Asia (n=180)	57.56 (13.98)
AG (n=43)	58.69 (15.34)
SEA (n=121)	61.19 (13.17)*
WEIRD (n=89)	62.35 (12.61)**

\*MENA participants had significantly lower VVIQ scores than SEA (p<.05) and WEIRD (p<.01) participants (Figure 2)

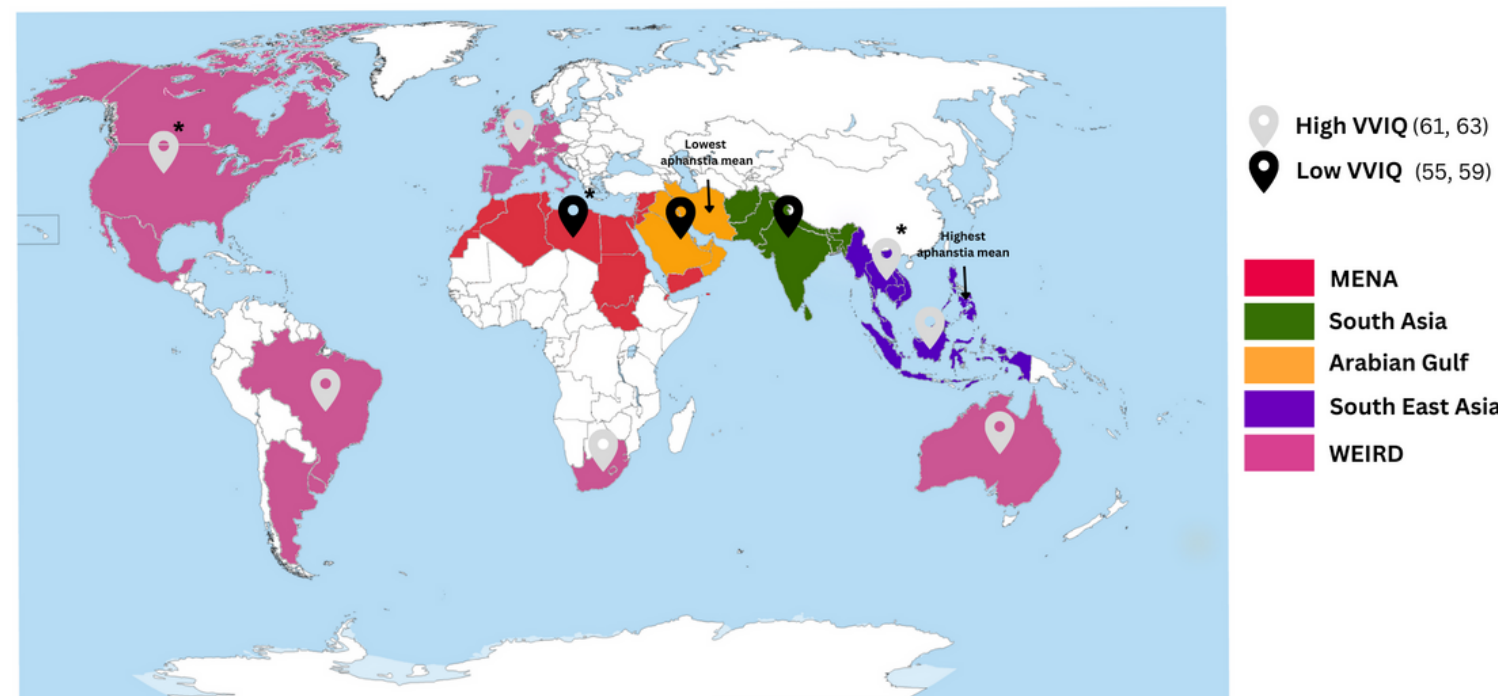


Figure 2: Cultural Groups & VVIQ Differences

### PSiQ Results & VVIQ Correlations Across Cultures:

- n=519; MENA and AG: significantly lower PsiQ scores across all sensory modalities compared to SEA, who reported highest imagery across all senses (p<.05\*;p<.001\*\*) (Table 1)
- Higher VVIQ scores correlated with higher imagery scores in all senses (p's <.01\*\*) (far right column, Table 1)

Psi-Q	Highest M (SD)	Lowest M (SD)	VVIQ (r)
Vision	SEA: 8.85* (1.61)	MENA: 7.90* (1.80)	.71**
Sound	SEA: 8.81* (1.59)	MENA: 7.72* (2.35)	.64**
Smell	SEA: 8.01** (2.11)	AG: 6.14** (2.80)	.55**
Taste	SEA: 8.29** (1.88)	AG: 6.52** (2.52)	.51**
Touch	SEA: 8.77* (1.77)	MENA: 7.80* (2.18)	.61**
Body	SEA: 8.47** (1.85)	MENA: 7.36** (1.91)	.60**
Feel	SEA: 8.25* (2.10)	AG: 7.00* (2.09)	.53**

Table 1: PsiQ Scores & PsiQ pearson correlations with VVIQ scores