



# THE PRACTICAL IMPACT OF AGE DIFFERENCES ON TEST SCORES ON SELECTING OLDER WORKERS

## Overview

- To give a better understanding of the practical impact of age differences on tests and questionnaires on older workers.
- To be aware that as age is a continuous rather than a categorical variable (unlike gender and ethnicity) and that the impact is greater towards the extremes e.g. Negative impact is greater on over 55's than those over 40.
- With correlations with age even of -0.2 or -0.3 this can markedly reduce an individual over the age of 55's chance of being selected.
- To highlight the importance of constructing and using tools with low age differences as well as good validity.
- To highlight that given the low correlations with age on behavioural performance criteria that differences on behavioural assessment measures (personality questionnaires) should also be low.

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## Introduction

This paper looks at the practical impact that age trends on test scores can have on the likelihood of older workers being selected with different cut-off scores.

Presenting correlations with age and percentage of variance explained by age, at best give users limited insight into the impact age trends in tests and questionnaires will have in selecting workers of different ages and at worst in the case of percentage of the variance bamboozle the average test user.

Variables which could lead to differences in test or questionnaire scores that we may need to consider for legal compliance or economic and social policy reasons such as ethnicity and gender are typically categorical in nature. Age, by contrast, is continuous.

While, it is useful to highlight the impact above the mean age (i.e. impact on worker over approximately 40 years of age), it is also important to consider the impact of the differences on workers older than this. There is a danger that for some of these older workers that the impact of not being selected is particularly acute when there are less employment opportunities available.

Because age is a continuous variable the impact of age differences is expected to be more marked on older workers.

## Method

A simulation was conducted with 10,000 cases.

Age was normally distributed to broadly mirror the demographics of the UK working population (mean age= 41.9 years, SD= 11.1 years).

Three normally distributed test scores were created that had a -.1, -.2, -.3 correlation with age.

The impact of cutoff's at different levels were considered.

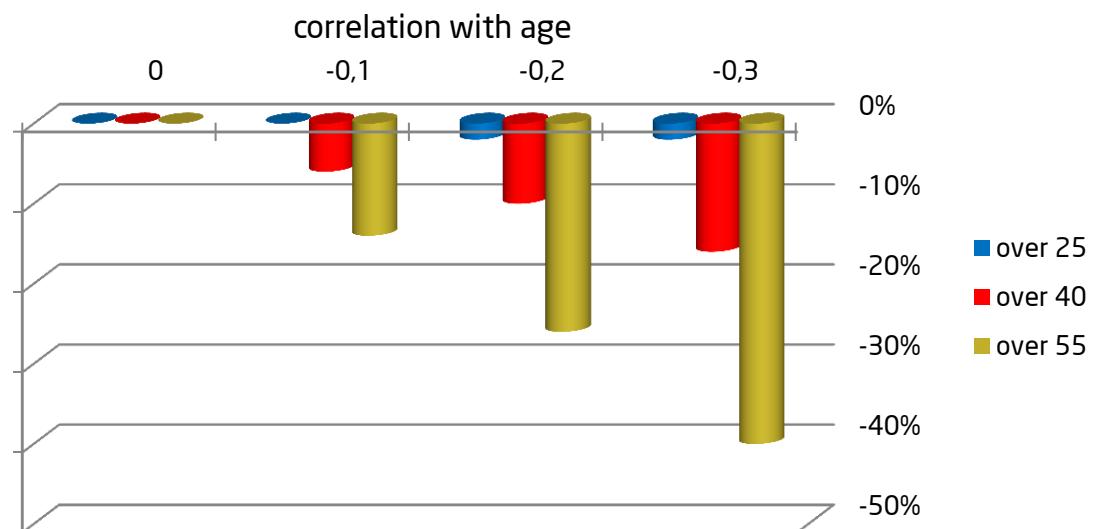


Figure 1: Impact of chances of being hired based on 50%ile cutoff for workers over 25, 40 and 55 with assessments with correlation of 0, -.1, -.2, -.3 with age

## Results

The results indicated that even with effect sizes of age and test score which would be classed as small to moderate (Cohen, 1988) these correlations can have a great impact on the chance of being selected.

Figure 1 indicates with a cutoff at the 50<sup>th</sup> ile the impact of test score on worker over the age of 25, 45 and 55 respectively. As correlations with age go up to -0.3 the chance of being selected can reduce by 40%. i.e. you only have 60% of the chance of being selected than if the assessment had no relation with age.

With higher cutoffs the impact is greater. For example, a correlation of as little as -0.2 between age and test score can reduce the chances of an applicant aged over 55 years of being selected by 68% if the tool is to be used to screen out at the 75<sup>th</sup> percentile.

## References

Cohen, J. (1988) Statistical Power Analysis for the Behavioural Sciences. New York, LEA.

## Conclusions

Misleading figures such as percentage variance are not meaningful in describing the practical impact of age.

Clearly, tools should be selected based on their validity, but age trends also vary greatly between personality questionnaires. In particular, concern should be taken on considering whether differences on personality scales in the predictor domain are mirrored by differences in behaviours in the criterion domain. Across 36 behavioural criteria externally rated in the validation of Saville Consulting Wave Professional Styles on standardisation the highest correlation with age was +0.13 for Analysing Situations and +0.12 for Resolving Conflict (N=556-658 sample size varied due to no evidence option on criterion ratings). Note these are positive associations with age.

It is not immediately apparent how correlations in excess of 0.20 (positive or negative) on predictor instruments such as personality questionnaires are justifiable on the basis of such small behavioural criterion differences particularly given the practical impact such differences can have.