

Type D personality is associated with greater blood pressure, heart rate and hormone responses in socially stressful situations

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Introduction

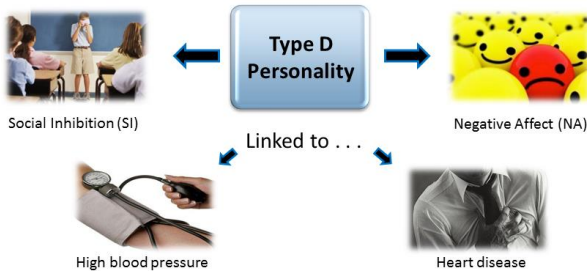
➤ Acute mental stress, such as public speaking

Activation of

- Cardiovascular system: **↑ heart rate (HR)** & **↑ blood pressure (BP)**
- Stress hormone release: **↑ cortisol**¹

- Large cardiovascular reactions to stress have been associated with **high blood pressure** and **cardiovascular disease** development²
- Personality is linked to how we interpret stressful situations so therefore how our body responds.

Fig 1. Components of Type D Personality



- Mixed evidence between Type D personality and stress reactions. Potentially due to: Amount of **social evaluation** during the stress

Purpose and Aims

- Compare the cardiovascular and cortisol responses in Type D and non-Type D individuals under conditions of high or low social evaluative stress to see if this provides the link to high blood pressure and heart disease.

Method

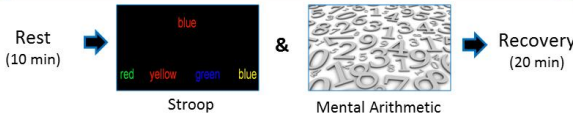
2300 University students ➔ Type D Questionnaire (DS14)

e.g.
SI: 'I find it hard to start a conversation'
NA: 'I am often in a bad mood'

Non-social or Social Stress Condition

Table 1. Participants characteristics

	Non-social Stress		Social Stress	
	Type D	Non-Type D	Type D	Non-Type D
	Mean (SD)/N (%)			
Number (N= 130)	31 (24)	30 (23)	35 (27)	34 (26)
Gender (females)	18 (58)	14 (47)	18 (51)	20 (59)
Age (years)	21.5 (2.41)	19.9 (1.53)	20.4 (1.91)	20.1 (1.17)



Measures: = BP & HR = Salivary cortisol

2 Stress Conditions:

Non-social Condition

- Auditory beeps for incorrect answers/time out relayed via computer/CD.
- Informed: perform to best ability but no social evaluation or comparison.

Social Condition

- Informed: performance assessed + displayed on leader board.
- Video camera + live TV recording: body language assessment.
- Experimenter enter room: deliver beeps and provide scoring.



Results

- Stress tasks caused significant increase in BP and HR

	Rest	Stress
	Mean (SD)	
Systolic BP (mmHg)	103.9 (9.49)	118.8 (15.13)
Diastolic BP (mmHg)	53.9 (5.47)	65.0 (7.50)
HR (bpm)	63.1 (10.31)	78.4 (14.66)

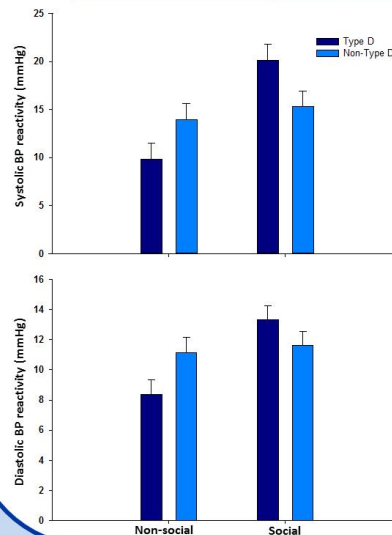


Fig 2. Systolic BP:

Type D individuals in the social stress condition had the greatest response, with lower responses in non-social condition

Fig 3. Diastolic BP:

Type D individuals in the social stress condition had the greatest response, with lower responses in non-social condition

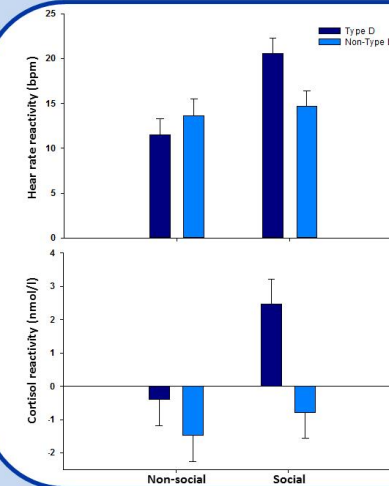


Fig 4. Heart rate:

Type D individuals in the social stress condition had the greatest response, with lower responses in non-social condition

Fig 5. Cortisol:

Only group to increase their stress hormone levels were the Type D individuals in the social condition

Discussion

- Type D individuals in social stress condition:

- Greatest blood pressure and heart rate responses
- Only group to increase their cortisol levels

Why do Type D individuals have the greatest reactions to social stress??

Social Inhibition
Hiding emotions in social situations = **↑ physical reactions of the body**

Negative Affect
↑ intensity of negative emotions in social situations = ↑ hiding of emotions

Given that most stressors in life include social aspects:

e.g. public speaking, job interviews

The exaggerated BP, HR and cortisol responses in Type D individuals under these conditions



High blood pressure



Heart disease

- **Future research:** Help reduce stress through interventions

References

1. Turner, J. R. (1994). Cardiovascular Reactivity and Stress. NY: Plenum Press.
2. Obrist, P. (1981). Cardiovascular Psychophysiology. NY: Plenum Press

Acknowledgements

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