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Work Stress, Displaced Anger, Gender, and Anti-Social Online Behaviour (AOB)

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Work Stress, Displaced Anger, Gender, and Anti-Social Online Behaviour (AOB)

Master of Arts in Organisational Psychology: Research Report

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Declaration

I, Shabina Arif Muhammad Arif, declare that this research report is my own unaided work. It is submitted for the Master of Arts in the field of Organisational Psychology degree at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any other degree or examination at this or any other university.

Signature: 

Date: 01/03/2024

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Abstract

Aim: This study aimed to investigate how stress at work may cause displaced anger, which can lead to Antisocial Online Behaviour (AOB). The study also examined whether there are variations between males and females regarding the extent to which they engage in AOB. Hence, the study examined the mediating effects of anger in the indirect relationship between work stress and AOB and assessed for gender variations in these processes.

Design/methodology/approach: The study adopted a quantitative, non-experimental, correlational, and cross-sectional design. A questionnaire with sections for demographic data, the work stress scale, the displaced anger scale, and the AOB scale was utilised. The study sampled 145 working individuals through various organisations and from Wits Plus students at the University of the Witwatersrand who are in full-time employment. The data gathered through these samples were analysed using descriptive statistics and statistical techniques, such as Correlations and a Mediated Regression Analysis.

Results: This study revealed no significant relationships between Work-related Stress and Displaced Anger ($r = 0.09$, $p = 0.27$). Furthermore, there was no discernible relationship between Work-related Stress and Antisocial Online Behaviour (AOB) ($B = 0.08$, $p = .36$) nor between Displaced Anger and AOB ($r = -0.01$, $p = .94$). Additionally, gender analysis revealed no significant variations in AOB levels between the genders ($B = 0.075$, $p = .822$). However, displaced anger exhibited a marginally significant effect, with males exhibiting slightly greater levels than women ($B = -2.851$, $p = .062$).

Conclusion: These findings imply that the predicted pathways from work-related stress to AOB through displaced anger are not well supported, suggesting that people may be managing their stress without turning it into antisocial behaviour by employing adaptive coping strategies like constructive social media use. These results cast doubt on the usefulness of FADM in professional settings and are consistent with other theories like the Conservation of Resources (COR) Theory and the Affective Events Theory (AET), which highlight the role of social support, situational triggers, and resource depletion in reducing stress reactions. To capture the dynamic nature of stress reactions over time, future research should look at other emotional mediators, like boredom or frustration, and adopt longitudinal methods.

Key Words: Work Stress, Displaced Anger, Theory of Displaced Anger, Anti-Social Online Behaviour (A0B), Gender.

Table of Contents

Work Stress, Displaced Anger, Gender, and Anti-Social Online Behaviour (AOB) 1
Declaration 2
Acknowledgements 3
Abstract 4
Table of Contents 5
List of Tables 9
Chapter 1: Introduction 10
1.1 Rationale 10
1.2 Aim 12
Chapter 2: Literature Review 13
2.1 Introduction 13
2.2 Definition of Work Stress 14
2.3 Models of Work Stress 15
2.3.1 The Transactional Model of Stress 15
2.3.2 Karasek's Job-Demand Control Model 16
2.3.3 Effort-Reward Imbalance (ERI) Model 16
2.3.4 Job Demand-Resource (JD-R) Model 17
2.4 Implications of Work Stress 19
2.5 Work Stress and Emotions 21
2.6 Definition of Anger and its Link to Work Stress 21
2.7 Components of Anger 22
2.8 Anger and Antisocial Behaviour 24
2.9 Displaced Anger 25
2.10 Antecedents of Displaced Anger in Organisations 25
2.11 Expressions of Anger 27
2.12 Theoretical Framework: Frustration Aggression Displacement Model (FADM) 28
2.13 Displaced Anger and Antisocial Online Behaviour (AOB) 29
2.14 Definition and Types of Antisocial Online Behaviour (AOB) 30
2.14.1. Definition of Cyberbullying 31
2.14.2 Prevalence of Cyberbullying 31
2.14.3. Hate Speech and Threats 32
2.14.4. Flaming 33
2.14.5. Doxing 33
2.14.6. Trolling 34
2.14.7. Liking Hateful Content 35
2.15 Consequences of AOB 35

2.16 Gender Variations in Stress, Anger, and AOB 37
2.16.1. Gender differences in Work-Related Stress 38
2.16.2. Gendered Manifestations of Anger 39
2.16.3. Gender Expectations in Anger Expression 40
2.16.4. Implications and AOB 40
2.17 Conclusion 41
Research Questions 44
Formulation of the research questions: Introduction 44
Chapter 3: Methodology 46
3.1 Research Design 46
3.2 Sample and Sampling 46
3.3 Instruments 47
3.4 Procedure 50
3.5 Data Analysis 52
3.5.1 Correlation Analysis 53
3.5.2 Mediated Regression Analysis 54
3.6 Ethical Considerations 56
3.7 Summary and Conclusion 59
Chapter 4: Results 60
4.1 Preventative Measures 60
4.2 Descriptive Statistics 60
4.2.1 Demographic Variables 60
4.2.2 Frequencies and Percentages of Anonymous Accounts 63
4.2.3 Main Variables 64
4.3 Reliability Analysis 66
4.3.1 Reliability Analysis for Work-Related Stress (WS) Scale 66
4.3.2 Reliability Analysis for Displaced Anger (DA) Scale 68
4.3.3 Reliability Analysis for Anti-Social Online Behaviour (AOB) Scale 69
4.3.4 Summary of Reliability 72
4.4 Inferential Statistics – Parametric Assumptions Continue Here 73
4.4.1 Normality Before Outliers 73
4.4.2 Outliers 75
4.4.3 Linearity 78
4.5 Pearson Correlation Analysis 79
4.5.1 Separate Totals 80
4.5.2 Pearson's Correlation with Separate Totals 81
4.5.3 Including Positive Items 83

4.5.4 Pearson's Correlation with Positive Items 83
4.6 Assumptions of Mediation Regression Analysis 84
4.6.1 Assumption of Linearity 84
4.6.2 Assumption of Homoscedasticity 85
4.6.3 Assumption of Multicollinearity 85
4.6.4 Assumption of Outliers 86
4.6.5 Assumption of Normality of Residuals 87
4.7 Mediation Regression Analysis 87
4.7.1 Direct Effects 88
4.7.2 Indirect Effects 89
4.7.3 Total Effects 89
4.7.4 Gender as a Covariate 89
4.8 Summary of Results Chapter 90
Chapter 5: Discussion 93
5.1 Summary of Key Findings 93
5.2 Interpretation and Explanation of the Results 94
5.2.1 Measurement-Related Aspects 94
5.2.2 Confounding Variables 100
5.2.3 Sample Characteristics - Gender 104
5.2.4 Additional Sample Characteristics 106
5.2.5 Methodological Constraints 111
5.2.6 Alternative Use of Social Media 115
5.3 Theoretical Implication of Findings 117
5.3.1 Challenge to FADM 117
5.3.2 Theory of Conservation of Resources 118
5.3.3 Affective Events Theory (AET) 119
5.3.4 Kubler Ross's Change Model 120
5.3.5 Job Demands - Resources Theory 121
5.3.6 Gender-Sensitive Frameworks 121
5.4 Practical Implication of Findings 122
5.4.1 Workplace Interventions for Stress Management 122
5.4.2 Gender–Sensitive Approaches 123
5.4.3 Preventing AOB 124
5.4.4 Broader Policies 124
5.4.5 Summary 125
5.5 Limitations 126
5.5.1 Demographics and Sample Size 126

5.5.2 Scale and Measurement Reliability 127
5.5.3 Anger and Workplace Stress Correlation 129
5.5.4 Methodological Constraints 130
5.5.5 Analytical Limitations 130
5.5.6 Cultural Context and Generalisability 131
5.5.7 Outliers and Data Integrity 131
5.5.8 Operationalisation of Constructs 132
5.5.9 Technological and Tool Limitations 132
5.5.10 Limited Theoretical Frameworks 132
5.6 Future Research Direction 133
5.6.1 Alternative Emotional Reactions 133
5.6.2 Longitudinal Studies 133
5.6.3 Utilising a Multidimensional Approach to Stress and Anger 134
5.6.4 Cross-cultural and Cross-Industry Comparisons 134
5.6.5 Refining and Expanding Behavioural Measures 135
5.6.6 Incorporating Technological and Behavioural Tracking 136
5.6.7 Examining Unexplored Confounding Variables 137
5.6.8 Integrating Multiple Theoretical Frameworks 137
5.7 Conclusion 138
References 140
Appendices 154
Appendix A: Demographic Questionnaire - Organisational 154
Appendix B: Demographic Questionnaire – Wits Plus Sample 156
Appendix C: Work Stress Scale 158
Appendix D: Displaced Anger Scale 161
Appendix E: Antisocial Online Behaviour (AOB) Scale 162
Appendix F: Permission Letter to Organisations 170
Appendix G: Permission Letter to Faculty Registrar and Course-Coordinator 173
Appendix H: Participation Information Sheet – Organisational Sample 176
Appendix I: Participation Information Sheet – Wits Plus Sample 179
Appendix J: Email Invitation – Organisational Sample 182
Appendix K: Email Invitation – Wits Plus Sample 184
Appendix L: Informed Consent 186
Appendix M: Ethics Clearance Certificate 187
Appendix N: Certificate of Permission from Registrar 188
Appendix 0: Frequencies and Percentages of Anonymous Behaviours 189
Appendix P: Assumption Testing 192

List of Tables

Table 1: Sample Demographic Characteristics 61
Table 2: Descriptive Statistics for Main Variables 65
Table 3: Reliability Statistics for Scales 67
Table 4: Item-Total Statistics for Work-Related Stress 67
Table 5: Item-Total Statistics for Displaced Anger 69
Table 6: Item-Total Statistics for AOB 70
Table 7: Item-Total Statistics for AOB after outliers were removed 71
Table 8: Tests of Normality 74
Table 9: Descriptive Statistics for Main Variables Post Outlier Removal 76
Table 10: Tests of Normality Post Outlier Removal 77
Table 11: Pearson's Correlations 80
Table 12: Pearson Correlations with Separate Totals 82
Table 13: Correlations with Reversed Positive Items 84
Table 14: Multiple Regression - Multicollinearity 86
Table 15: Mediation Regression Process 4 88

Chapter 1: Introduction

Research suggests that work-related stress affects an individual's emotional state, with anger being one of the most prevalent emotional reactions among stressed individuals. (Vranjes et al., 2020). A growing body of evidence indicates that the emotional reactions caused by work-related stress are often expressed by individuals on online platforms (Vranjes et al., 2021). Individuals, due to displaced anger, may find it easier to express themselves on online platforms, targeting their frustrations towards other people rather than the original provoker/s within the workplace (Vranjes et al., 2020). This study will explore the correlation between three variables: work-related stress, displaced anger, and antisocial online behaviour (AOB). Furthermore, it will identify the mediating role of anger in the relationship between work-related stress and AOB. Lastly, it will assess gender variations in these processes.

1.1 Rationale

The workplace setting, its context, and the overall work environment can significantly impact an individual's stress levels, subsequently impacting the individual's overall well-being. Work-related stress and its serious repercussions on individuals' well-being and behaviour have been identified as a widespread epidemic. Research studies conducted on this issue have highlighted the significant correlation that exists between work stress and the experience of negative emotions (Houge Mackenzie & Kerr, 2013; Johnson & Indvik, 2001; Ohly & Schmitt, 2015; Vranjes et al., 2020). The findings of these studies have indicated that individuals who experience high and/or chronic levels of work stress are more likely to experience and express negative emotions.

The specific emotion that this study aims to explore is anger. According to research, anger has been identified as one of the most prevalent emotional reactions to work stress (Kweon et al., 2008; McLinton & Dollard, 2010; Vranjes et al., 2020). Furthermore, researchers have also brought to our attention that the expression of anger is not always necessarily directed to the original trigger of stress (Vranjes et al., 2020). Rather, individuals find it easier to redirect their expression of anger towards third parties, where they are not bound to social norms and code of conduct (Vranjes et al., 2020). The advancement of social media and social networking sites has opened fresh paths for displaced aggression and antisocial behaviour that result from work-related challenges and stress. This form of behaviour has allowed social media and networking sites to become a platform for encouraging hate and mistreatment, such as cyberbullying and cyber-harassment (Malik & Pichler, 2022).

According to Ipsos' Global Advisory study conducted in 2018, cyberbullying has become a widespread global issue, including in South Africa ('Global Views on Cyberbullying', 2018; Matlala, 2019). Based on the study's given statistics, South Africa, in 2018, had one of the highest rates of cyberbullying in the world, with approximately 51% of South African youth reporting experiencing cyberbullying. Furthermore, in 2021, *Facebook*'s survey proactively detected 96.5% of hate speech ('Global Views on Cyberbullying', 2018; Matlala, 2019). In the same year, *TikTok* removed 1.78 million videos due to hate speech, whereas *Twitter* acted against approximately 1,108,722 accounts for infringing on their policy on hateful conduct by either deleting tweets or banning accounts (O'Driscoll, 2021). Studies have also highlighted how there has been an increase in hate and aggressive speech over the years, as well as its consequences. Research has also noted that not only will the target of such hate speech and aggression experience dire consequences, but there may also be negative health consequences for individuals (perpetrators) who choose to engage in such forms of negative behaviour. (Malik & Pichler, 2022).

Whilst previous research has indicated that work stress causes anger, which in turn may result in AOB (Vranjes et al., 2020), further investigation is required to statistically confirm the mediating effects of anger on the relationship between work stress and AOB. In addition, although it is generally accepted that stress is linked to undesirable behaviour/s, there is insufficient understanding of how different genders may experience work-related stress and express/displace work-related stress in different ways on social media.

An understanding of these relationships is of importance to organisations as they can suffer reputational damage if any of their employees are exposed for engaging in such behaviour. Any business or organisation's capacity to develop procedures and support systems that successfully handle this problem for individuals is severely limited by this gap in knowledge. Therefore, this study aims to provide more substantial evidence on the problem as well as suggest ways in which such problems could be circumvented. Therefore, the study aims to explore the relationships between work stress, anger displacement, and AOB, and potential gender differences in this process, by considering the diverse experiences and coping mechanisms that men and women may exhibit in response to work stress (Kweon et al., 2008; Vranjes et al., 2020). This study thus aims to provide a more comprehensive understanding of work stress, the experience and expression of displaced anger and antisocial online behaviour/s in different genders. With this understanding, organisations can perhaps create more targeted solutions that

support more positive online activity on social media platforms and healthy stress management for individuals' well-being.

1.2 Aim

This research project aims to gain a more nuanced understanding of how work-related stress can lead to displaced anger and, subsequently, antisocial online behaviour (AOB), impacting different genders differently. This will be achieved by exploring the correlation between specific work stressors that can influence displaced anger, as well as the correlation between anger and antisocial online behaviour (AOB). Furthermore, the study aims to identify the mediating role of anger in the relationship between work stress and antisocial online behaviour (AOB). Lastly, the study will assess gender variations in these processes.

Chapter 2: Literature Review

2.1 Introduction

The contemporary workplace provides several issues that might substantially influence employee well-being (Kundaragi & Kadakol, 2015). One such problem is work-related stress, which is described as the psychological and physical strain caused by demanding working circumstances (Burman & Goswami, 2018). In organisations, an individual's working environment, interactions with managers and colleagues, as well as job duties, collectively affect stress levels (Ohly & Schmitt, 2015). Work stress has been identified as a prevalent concern which not only impacts the success of an organisation but also has negative implications for employees' well-being (Universari & Harsono, 2021). This stress can manifest in various ways, including emotional exhaustion, anxiety, and difficulty concentrating (Kundaragi & Kadakol, 2015). In recent years, there has been an increasing worry about the possible spillover of work-related stress into the online world, notably in the form of antisocial online behaviour (Vranjes et al., 2020).

Research suggests that individuals who experience work stress can potentially harm the well-being of other individuals through antisocial behaviours and displaced anger (Vranjes et al., 2020). Antisocial online behaviour refers to a variety of disruptive and destructive actions directed within the digital environment (Cheng et al., 2021). Examples include cyberbullying (repeatedly harassing or threatening someone online), flaming (posting inflammatory or insulting messages), and trolling (purposefully baiting others with disruptive or unpleasant content) (Machackova et al., 2015; Andersen, 2021). These actions can have negative implications for both the victims and the perpetrators. Displaced anger is often identified as a key negative emotion that is linked to both work-related stress and engaging in antisocial behaviour (Vranjes et al., 2020). The Frustration-Aggression Displacement Model (FADM) is an important conceptual framework for understanding this interaction. According to this approach, behaviour arising from stress and frustration is not directed towards the initial trigger/instigator who caused the stress and anger, but is instead directed towards third parties (Salguero et al., 2020; Vranjes et al., 2020).

In addition to these findings, existing research illustrates gender variations in the experience of workplace stress and emotions of displaced anger (Jick & Mitz, 1985; Vranjes et al., 2020). Hence, indicating that the dynamics between stress, anger, and antisocial online behaviour may differ based on gender. This literature review investigates the complicated relationship between

work-related stress, displaced anger, and antisocial online behaviour. By reviewing the current body of research, this review aims to shed light on the connection between workplace stress, displaced anger, and antisocial online behaviour, as well as to investigate the mediating role of anger in the relationship between workplace stress and antisocial online behaviour, whilst considering potential gender differences in this process. Understanding these dynamics is crucial for designing strategies and interventions to improve employee well-being and minimise the prevalence of negative online behaviour.

Below follows a general discussion of work stress, the implications of work stress for individuals and organisations, a definition of anger, how this is linked to work stress and how this anger can be displaced and linked to AOB. Thereafter, a discussion of types of AOB, consequences of AOB and a discussion of research on gender variations are outlined, followed by the theoretical framework of the research known as The Frustration-Aggression Displacement Model (FADM).

2.2 Definition of Work Stress

Based on a systematic literature review conducted in 2018, stress can be defined as the response to certain situations or conditions experienced by individuals that may cause excessive pressure or other forms of demands placed upon a person's psychological and physical domains (Burman & Goswami, 2018). Furthermore, stress can be triggered by numerous sources such as financial problems, personal relationships, and work (Universari & Harsono, 2021). This literature review focuses on work-related stress and how work-related stress can lead to negative emotions such as anger. Work stress or organisational stress can be defined as a negative psychological state with cognitive and emotional components that affect the health of individuals (Universari & Harsono, 2021). Work stress arises due to difficult interpersonal relationships at work, environmental demands, workplace interactions, or when there is a discrepancy between an individual's job demands and their resources or ability to meet those demands (Burman & Goswami, 2018; Universari & Harsono, 2021). When these demands exceed an employee's ability to cope effectively, it will lead to a state of strain, stress, and reduced well-being (Burman & Goswami, 2018; Universari & Harsono, 2021). This can be further understood by organisational stress frameworks.

2.3 Models of Work Stress

There are a number of different models of stress that explain how stress is perceived and how it can negatively impact the individual experiencing the stressor/s. Organisations can use these models to better understand the concept of work-related stress and its impact on employee well-being. These models include the Transactional Model of Stress by Lazarus and Folkman (1984), the Job Demand-Control model developed by Karasek in 1979, the Effort-Reward Imbalance model by Siegrist (1996), and the Job Demand-Resource Model (JD-R Model) developed by Demerouti, Bakker, Nachreiner, and Schaufeli in 2001 (Van Den Broeck et al., 2013). These models offer distinct yet complementary perspectives on the factors contributing to occupational stress. These models outline how stress is perceived, as well as possible antecedent factors in the work environment that can lead to stress arising.

2.3.1 The Transactional Model of Stress

The most commonly used framework for understanding stress is Lazarus and Folkman's Transactional Model of Stress and Coping. This model is a widely recognised approach that emphasises the dynamic interplay between personal and environmental factors in how individuals respond to stress (Hulbert-Williams et al., 2013; Sun et al., 2023). It posits that stress is not merely a result of external events but arises from the individual's perception and interpretation of these events (Hulbert-Williams et al., 2013; Sun et al., 2023). In other words, while external environmental stressors are present, it is the manner in which these factors are perceived that determines whether they become a source of stress for the individual (Sun et al., 2023). Based on this understanding, it is important to identify that aspects of work and the work environment fall into two categories: objective features of the environment that are likely to be perceived as stressful by most individuals, and the subjective perception of these features, which varies based on individual dispositions (Sun et al., 2023; Vranjes et al., 2020). This understanding is supported by Vranjes et al. (2020), who highlight that different individuals may perceive different aspects of their work environment differently, leading to varied reactions. Similarly, Kundaragi and Kadakol (2015) emphasise that these differences in perception lead to different reactions and responses. Understanding Lazarus and Folkman's model reinforces this notion of ‘perceived’ stress, emphasising the importance of how events are ‘appraised’ by individuals exposed to them (Sun et al., 2023).

This model is particularly applicable in the context of work stress, where the demands of the job, organisational climate, and individual differences can significantly influence how stress is

appraised and managed (Goh et al., 2010). The model has been applied in occupational settings to explore how employees cope with various stressors, such as workload, interpersonal conflicts, and organisational change, and how these coping mechanisms impact outcomes like job satisfaction, burnout, and overall well-being (Goh et al., 2010). On this note, the next section of the literature review aims to provide a discussion on the causes of work-related stress that this study aims to look at.

2.3.2 Karasek's Job-Demand Control Model

Karasek's Job Demand-Control (JDC) model posits that work-related stress arises from the interplay between job demands and job control (Baillien et al., 2011). The model describes job demands as the psychological stressors involved in accomplishing work tasks, such as workload, time pressure, and role conflict (Pelfrene et al., 2001). On the other hand, job control (also known as decision latitude) refers to the ability of workers to make decisions about their work and use their skills (Pelfrene et al., 2001). According to the model, the highest levels of stress are experienced when job demands are high and job control is low (high-strain jobs) (Baillien et al., 2011). Conversely, jobs that are high in demand but also high or substantial in control (active jobs) can lead to learning and growth, while jobs that are low in both demand and control (passive jobs) may lead to monotony and disengagement (Baillien et al., 2011). Ultimately, the JDC model underscores the importance of balancing job challenges with employee autonomy and agency to mitigate stress (Pelfrene et al., 2001).

2.3.3 Effort-Reward Imbalance (ERI) Model

Siegrist's Effort-Reward Imbalance (ERI) model posits a direct link between the demands placed on employees and the compensation they receive (Babamiri et al., 2022). Employees' efforts encompass physical, mental, and emotional investments in their work, while rewards include tangible benefits like salary and job security, as well as intangible gains such as recognition and career advancement (Babamiri et al., 2022). A disparity between these factors, where effort significantly outweighs rewards, can lead to a state of imbalance (Babamiri et al., 2022). This imbalance is associated with negative emotional states, diminished well-being, and increased risk of physical health problems (Babamiri et al., 2022; Gilbert-Ouimet et al., 2014). Essentially, the ERI model highlights the significance of perceived fairness in the effort-reward relationship (Babamiri et al., 2022; Gilbert-Ouimet et al., 2014). An imbalance, where effort exceeds rewards, can lead to negative outcomes (Babamiri et al., 2022; Gilbert-Ouimet et al., 2014).

2.3.4 Job Demand-Resource (JD-R) Model

While both these models provide valuable insights into the importance of employee autonomy and rewards. The present study's literature review focuses on the Job Demand-Resource Model (JD-R Model) to understand the concept of occupational stress, as the JD-R Model provides a comprehensive understanding of work-related stress since it is an enhanced and integrated version of the Job Demand-Control model and the Effort-Reward Imbalance model (Van Den Broeck et al., 2013).

The Job Demand-Resource Model is one of the most extensively researched models in the fields of human resource management and organisational psychology (Demerouti & Bakker, 2011). Whilst several factors need to be considered when studying the concept of work-related stress, the job demands-resource model explains two of these factors, namely, job demands and job resources (Demerouti & Bakker, 2011). Demerouti and Bakker have defined job demands as 'those physical, psychological, social, or organisational aspects of the job that require sustained physical and/or psychological (cognitive and emotional) effort or skills and are therefore associated with certain physiological and psychological costs' (Bakker & Demerouti, 2007, p. 312). Whereas job resources are defined as 'those physical, psychological, social, or organisational aspects of the job that are either/functional in achieving work goals, reduce job demands and the associated physiological and psychological costs, stimulate personal growth, learning, and development' (Bakker & Demerouti, 2007, p. 312).

The model highlights that high job demands and expectations, such as workload, are major contributors to stress and burnout (Bakker & Demerouti, 2007). Workload refers to the amount and intensity of work allocated to an individual (Demerouti & Bakker, 2011). When a person's workload surpasses their ability or resources to manage it successfully, it becomes a significant demand (Bakker & Demerouti, 2007; Demerouti & Bakker, 2011). This heavy workload can lead to emotions of being overwhelmed, pressured, and, eventually, stressed (Bakker & Demerouti, 2007; Demerouti & Bakker, 2011). The model highlights that poorly planned tasks or chronic job demands will enhance an individual's feeling of organisational stress and strain, resulting in an employee's mental and physical exhaustion (Bakker & Demerouti, 2007). In addition to workload, the model highlights unreasonable deadlines, increasing responsibility, and a toxic working environment as major contributors to low morale, decreased job satisfaction, and mental discomfort (Bakker & Demerouti, 2007). While the researcher

recognises the relevance of knowing the influence of the aforementioned elements, the primary emphasis of this study is their impact on work-related stress.

In addition to the above, the job demands-resource model also highlights that although high demands and an increased workload can lead to experiencing occupational stress, job resources can act as a buffer (Van Den Broeck et al., 2013). These resources could include mitigations such as support from management, autonomy and control, opportunities for growth and development, work recognition, and a healthy work-life balance (Van Den Broeck et al., 2013). Conversely, when the resources provided are insufficient to counter the effects of job demands, strain and stress become more likely (Bakker & Demerouti, 2007; Van Den Broeck et al., 2013). This directly relates to the ideas that were previously emphasised in the Job Demands Control Model and the Effort-Reward Imbalance Model (Babamiri et al., 2022; Baillien et al., 2011).

As the job-demands resource model identified the need for management support as a strategy to mitigate the effects of job demands, the model can be further extended to consider workplace relationships as a crucial resource (Van Den Broeck et al., 2013). As previously identified, interpersonal work relationships and interactions can have a significant impact on the experience of stress among individuals (Burman & Goswami, 2018; Universari & Harsono, 2021). Workplace relationships refer to the interactions, connections, and dynamics that exist between employees within a work environment (Jes Bella, 2023). These connections include exchanges between coworkers, supervisors, managers, subordinates, and individuals from various levels and departments within an organisation (Jes Bella, 2023). These interactions have a substantial impact on employees' work experiences, job happiness, and general well-being (Tran et al., 2018; Venkataramani et al., 2013).

Based on Venkataramani, Labianca, and Grosser's study (2013), trust, respect, open communication, cooperation, and support are qualities that define strong and productive working relationships. The study highlights that relationships that encompass these characteristics foster positive working collaborations and environments (Venkataramani et al., 2013). Positive workplace relationships contribute to a supportive and inclusive work culture, where employees feel respected, valued, and connected (Jes Bella, 2023). This, in turn, acts as a buffer against work stress, promoting job satisfaction and well-being (Jes Bella, 2023; Venkataramani et al., 2013). Conversely, negative workplace relationships characterised by conflict, hostility, and lack of cooperation can lead to dissatisfaction, stress, and reduced

productivity (Jes Bella, 2023; Venkataramani et al., 2013). By understanding the interplay between job demands, resources, and the quality of workplace relationships, organisations can implement strategies to promote a healthy work environment that fosters employee well-being and mitigates occupational stress.

Each of these models provides a unique perspective on how work-related stress develops and how it can impact employee health and performance. The Job Demands Control Model identifies the role of control or autonomy as an important source of work stress, indicating that if individuals can control their work environment and have autonomy and agency, then this may reduce the negative experience of demands placed upon them (Baillien et al., 2011). Similarly, the Effort-Reward Imbalance Model highlights that if individuals feel unrewarded for the effort they put in, then this may impact their perceptions of work demands, leading to experiences of dissatisfaction and stress (Babamiri et al., 2022). Ultimately, the JD-R Model provides a collective understanding of both these models (Van Den Broeck et al., 2013). Hence, understanding the complex interplay between job demands, resources, control, rewards, and workplace relationships is essential for gaining a holistic understanding of work-related stress.

2.4 Implications of Work Stress

A large body of research literature has indicated that workplace stress has been found to have negative implications for both employees and organisations (Kundaragi & Kadakol, 2015; Universari & Harsono, 2021; Vranjes et al., 2020). Individuals facing (and perceiving) work stress may experience many forms of physical and emotional reactions that impact their physical and mental health. Stress can cause individuals to become ill and experience emotional exhaustion, fatigue, and burnout (Kundaragi & Kadakol, 2015; Universari & Harsono, 2021).

Based on Universari and Harsono's study (2021), burnout is one of the most prevalent and prominent emotional repercussions of work-related stress. According to the World Health Organisation, burnout is a condition caused by unmanaged workplace stress (Abramson, 2022). The definition is distinguished by three dimensions: emotions of energy depletion or emotional exhaustion, increased mental detachment from one’s job or feelings of negativism and cynicism related to one’s job, and finally, a diminished sense of accomplishment (Abramson, 2022). Emotional exhaustion is another emotional consequence of workplace stress and burnout (Calitz, 2022; Kheswa, 2019). This manifests as a feeling of being emotionally drained and depleted, with reduced motivation and engagement (Calitz, 2022; Kheswa, 2019). Research highlights a substantial percentage of the workforce experiences burnout, which has a profound

impact on workers' health and productivity, resulting in high staff turnover, loss of motivation, decreased job satisfaction, and increased absenteeism, with the risk of these feelings spilling over into the worker's family and social lives (Calitz, 2022; Kheswa, 2019).

Studies from various countries paint a concerning picture. A 2020 survey in the US found 79% of workers reported experiencing work-related stress, with roughly three out of every five employees reporting negative consequences (Abramson, 2022). 26% reported a lack of desire and energy, 36% cognitive tiredness, 32% emotional exhaustion, and 44% physical fatigue (Abramson, 2022). Similarly, a global survey conducted in 2023 revealed that 38.1% of participants felt burned out, a considerable rise over the figures for 2021(Clarke, 2023). The figures demonstrate an increasing worry about the effects of work-related stress, with South Africa being no exception. According to the Global State of the Workplace survey, 43% of employees are under severe stress, with 61% experiencing burnout symptoms (Gewabe, 2022). This is further supported by a study among South African professionals, where 22% reported feeling overworked, and 50% of doctors cited burnout as the cause of their depression (BusinessTechSA, 2018). These statistics underline the critical need for initiatives to combat the worldwide workplace pandemic.

In addition to the previously described emotional implications of work-related stress, chronic work stress and burnout take a significant toll on physical health as well. The very diagnostic criteria for burnout include physical symptoms like fatigue, headaches, and muscular pains (Calitz, 2022). Stress can also affect sleep patterns, causing exhaustion, difficulty concentrating, and a compromised immune system, making people more vulnerable to infections and sickness (Calitz, 2022; Kheswa, 2019). According to research, burnout can lead to the development of more significant health problems such as high blood pressure, heart disease, stroke, and even death (Calitz, 2022). This danger is especially significant for people who work longer hours (more than 55 hours per week) (Calitz, 2022). This finding is corroborated by a comprehensive assessment of 61 studies from major databases such as PubMed and Science Direct (Salvagioni et al., 2017). These studies focused primarily on burnout as a source of health concerns. The findings demonstrated a significant correlation between burnout and a variety of physical health concerns (Salvagioni et al., 2017). Burnout has been linked to cardiovascular disorders like high cholesterol and heart disease, musculoskeletal discomfort like persistent pain, and even mortality before the age of 45

(Salvagioni et al., 2017). These findings highlight the relevance of stress management and burnout prevention for employees' physical and mental health.

2.5 Work Stress and Emotions

Not only do these consequences have negative implications for organisational outcomes such as performance, productivity, quality, organisational efficiency, job satisfaction, absenteeism, and turnover rates, but they also have negative implications on an individual's emotions, attitudes, perceptions, and behaviour (Universari & Harsono, 2021). This is supported by the Affective Events Theory (AET), which states that workplace events trigger emotional reactions that influence employee attitudes, behaviours, and performance (Ohly & Schmitt, 2015). The theory notes that experiencing constant pressure, such as unrealistic deadlines and/or toxic relationships, will lead to a barrage of negative affective outcomes (Ohly & Schmitt, 2015). Ultimately, these events will deplete emotional resources, making it more difficult for an individual to cope, resulting in a chain reaction of negative consequences for both individuals and organisations (Ohly & Schmitt, 2015). Due to the depletion and the wide range of effects that unmanaged stressors have on individuals' physical and psychological well-being, an array of negative emotions such as anxiety, depression, irritability, frustration, anger, sadness, and fear can be evoked (Kundaragi & Kadakol, 2015; Vranjes et al., 2020). While this wide array of emotions can be experienced in response to work stress, the literature does note that anger may be a predominant emotion that arises (Kweon et al., 2008; McLinton & Dollard, 2010; Vranjes et al., 2020). Based on the literature and due to the limited scope of this study, this literature review will focus on the relationship between work stress and the negative emotion, of anger. Anger will also be specifically focused upon because of its link to anti-social online behaviour (AOB).

The following section will elaborate more extensively on defining anger and its association with work stress, followed by an elaboration of anger and its association with AOB. In these sections, AOB will also be defined in depth.

2.6 Definition of Anger and Its Link to Work Stress

Anger is defined as intense, unpleasant feelings that are triggered by perceived threats, injustice, stress, frustration, or the failure to achieve desired outcomes (Lee et al., 2021; Vranjes et al., 2020). According to research, experiencing the emotion of anger is one that has been commonly linked to workplaces (Smith et al., 2005). Whilst there may be other factors that

contribute to this link, the relationship between anger and work stress is a widely recognised one (Houge Mackenzie & Kerr, 2013; Ilie et al., 2012; Kweon et al., 2008). Several studies contribute to this domain and have identified a significant relationship between work stress and feelings of anger (Fida et al., 2014; McLinton & Dollard, 2010; Penney & Spector, 2005; Smith et al., 2005; Vranjes et al., 2020). Some of the different work stressors that have been identified to have an association with anger include lack of good working conditions, work pressure, organisational injustice, lack of control and autonomy, poor interpersonal relationships, and others' and own underperformance (Baillien et al., 2011; Lee et al., 2021; Smith et al., 2005; Vranjes et al., 2020).

With a significant number of employees experiencing negative emotions as a result of stress, work-related anger appears to be a growing global concern. Statistics offer a concerning picture: in the United States alone, approximately 30% of workers exhibit some form of workplace aggression, often as a result of mounting work stress (Cao et al., 2023), while a quarter reported chronic anger (Kweon et al., 2008). This anger translates into real-world problems, with research suggesting that over 16,000 threats and 700 assaults occur daily in US offices (Kweon et al., 2008). Furthermore, the American Psychological Association (APA), reports that roughly 15% of employees admit to being angry or irritated towards their coworkers, clients, customers, and others (Julia, 2024). According to Pendell (2022), experiencing unpleasant emotions has reached a new height. Stress, worry, anger, and melancholy increased among global employees in 2020 (Pendell, 2022). In 2021, anxiety, anger, and melancholy remained above pre-pandemic levels, but stress reached a new high (Pendell, 2022). Even beyond severe cases, the implications of workplace anger are ubiquitous. It can result in lower productivity, more absenteeism, and strained relationships with coworkers (Kweon et al., 2008; Lee et al., 2021; Ohly & Schmitt, 2015). Furthermore, persistent anger has been related to a range of health conditions such as anxiety, depression, high blood pressure, and heart disease, adding another layer of hardship for both employees and employers (Kweon et al., 2008).

2.7 Components of Anger

Anger may be viewed as a multifaceted state that includes physiological arousal, situational cognition, and behavioural drives (Salguero et al., 2020). Physiological arousal refers to the physical changes that occur in the body when an individual is angry (Garfinkel et al., 2016). These changes, such as increased heart rate, blood pressure, and energy, are caused by the

body’s release of hormones that prepare one for action (Garfinkel et al., 2016). This physiological readiness is part of the body's innate "fight or flight" response, an immediate and automatic reaction to perceived threats or danger (Taylor et al., 2000). When faced with a stressor, the sympathetic nervous system is activated, leading to these physiological changes, which prepare the body either to confront the threat (fight) or to flee from it (flight) (Taylor et al., 2000). In the context of anger, this response is particularly relevant as it primes an individual to act, potentially aggressively or defensively (Salguero et al., 2020).

The fight or flight response is closely linked to the initial stage of Hans Selye's General Adaptation Syndrome (GAS), known as the alarm stage, where the body mobilises resources for immediate action (Szabo et al., 2012). If the stressor persists, the body enters the resistance stage, maintaining heightened alertness and engaging coping mechanisms to manage the ongoing stressor (Szabo et al., 2012). For anger, this might mean sustained physiological arousal as the individual deals with the ongoing stressor, potentially leading to prolonged feelings of anger or frustration (Salguero et al., 2020) which will be explored in more detail under section 2.9. Prolonged exposure to the stressor without resolution can lead to the exhaustion stage, where the body's resources are depleted, diminishing its ability to cope with stress (Szabo et al., 2012) . This prolonged activation of the fight or flight response can lead to serious physical and mental health problems, such as chronic anger, anxiety, depression, hypertension, and cardiovascular disease (Szabo et al., 2012; Taylor et al., 2000). Understanding these processes underscores the importance of managing anger effectively to prevent chronic stress and its associated health consequences.

However, how an individual behaves is determined by how they perceive and interpret the circumstance that provoked their anger, a process known as situational cognition and is closely tied to the previous discussion on Lazarus and Folkman’s Transactional Model of Stress and Coping (Deffenbacher, 2011; Hulbert-Williams et al., 2013; Sun et al., 2023). During this process, one’s past experiences, beliefs, and personality can all have an impact on the situation (Deffenbacher, 2011). For instance, an individual who is sensitive to criticism may perceive a minor criticism as a significant attack, resulting in sentiments of perceived personal injury and, thereafter, disdain and anger. As a result, viewing a situation in which one feels unfairly treated, intimidated, or irritated might elicit angry feelings (Deffenbacher, 2011). Finally, anger can trigger the desire to act on it; this is known as a behavioural drive (Deffenbacher, 2011). Anger may be used for a variety of purposes, such as motivating oneself to face difficult conditions,

expressing one's discontent or annoyance to others, and/or protecting oneself against threats (Salguero et al., 2020; Smith et al., 2005). Understanding these components can help one control anger more successfully; by understanding the physiological changes and conditions that cause anger, one can pick a healthy response to the situation (Deffenbacher, 2011). For example, the scenario may encourage an individual to be more productive or participate in problem-solving procedures to constructively handle the situation (Salguero et al., 2020; Smith et al., 2005). However, not all individuals are able to engage in such productive coping strategies, and their anger may often manifest in counterproductive outcomes, one of which is antisocial behaviour.

2.8 Anger and Antisocial Behaviour

As noted, anger may not necessarily be bad as it can be used for positive behavioural drives such as self-motivation. Though if the individual is unable to activate positive coping strategies, and/or if it persists, for an extended period, it can lead to strong, prolonged feelings that can become problematic (Salguero et al., 2020). Research conducted on the topics of anger and behaviour has demonstrated significant relationships between anger and aggression, violence, bullying, delinquency, workplace deviance, and other forms of antisocial behaviour, that is, any behaviour that violates the social norms of appropriate behaviour (Allen & Anderson, 2017; Hershcovis et al., 2007; Lindebaum & Geddes, 2016; Penney & Spector, 2005; Smith et al., 2005). The study conducted by Penney and Spector (2005) is one study that evidences the above. The study employed a robust methodology using both self- and peer reports to assess CWB (Counterproductive Work Behaviour) and workplace incivility among a diverse sample of employees (Penney & Spector, 2005). The total sample included 299 self-reports and 155 peer reports, providing a comprehensive perspective on the relationships between job stressors, negative affectivity, workplace incivility, and counterproductive work behaviour (Penney & Spector, 2005). Within the study, CWB and workplace incivility have both been described as behaviours intended to inflict harm and are considered deviant and antisocial (Penney & Spector, 2005). Whilst CWB is defined as actions that deliberately aim to inflict harm such as theft, verbal abuse, sabotage, and even physical assault, workplace incivility has been defined as low-level deviant behaviours including rudeness, derogatory remarks, and other forms of impolite conduct such as ignoring coworkers (Penney & Spector, 2005). The results of the study concluded that job or work-related stress leads to the experience of negative emotions such as anger, which subsequently leads to antisocial behaviour and organisational delinquency (Penney & Spector, 2005).

2.9 Displaced Anger

Although studies have found a link between anger, frustration, and antisocial conduct; they have also shown that deviant and other antisocial behaviour may not always target the initial trigger or initiator (Salguero et al., 2020; Vranjes et al., 2020). When such behaviour is not directed towards the initial trigger/instigator who caused the stress and anger, but instead onto innocent third parties then this is known as the theory of displaced anger (Salguero et al., 2020; Vranjes et al., 2020). Hence, the primary distinction identified between direct and displaced anger lies in the target (Salguero et al., 2020). When a person expresses their anger directly, they target the individual or the event that caused their frustration (Salguero et al., 2020). However, with displaced anger, an individual would vent or direct their anger and frustration on someone or something unrelated to the cause (Salguero et al., 2020; Vranjes et al., 2020). This redirection or displacement is not necessarily intentional - it can be the result of either conscious or unconscious behaviour, making it more challenging to recognise at times (Allen & Anderson, 2017). However, regardless of whether it is intentional or not, it can still have dire consequences for both the perpetrators and the victims. Recognising these patterns is crucial for addressing the root cause of our anger and developing healthier ways to express it, but as mentioned many may not have the insight and/or the coping strategies to manage their anger in an appropriate manner.

2.10 Antecedents of Displaced Anger in Organisations

Similarly, in the context of organisations, this kind of displacement would be common (Vranjes et al., 2020). Unlike the freedom to vent at home, workplaces enforce a culture of civility, often discouraging even the most controlled expressions of anger (Vranjes et al., 2020). Furthermore, workplaces forbid any aggressive behaviour, especially when it involves a superior (Allen & Anderson, 2017; Vranjes et al., 2020). Power dynamics can be incredibly intimidating, further preventing someone from expressing their resentment towards the initiator (Allen & Anderson, 2017; Vranjes et al., 2020). This creates a pressure cooker for emotions. Frustrations simmer beneath the surface as social norms and fear of repercussions prevent one from expressing anger directly (Allen & Anderson, 2017). This often leads to displaced aggression, where we take out our irritation on someone less intimidating than the source of our frustration (Allen & Anderson, 2017). For instance, a marketing manager receives a scathing email from their CEO. Fearing repercussions or jeopardising their career advancement, the manager might bottle up their anger. However, this frustration doesn't vanish. Later that day, during a brainstorming

session, the marketing manager might find themselves snapping at a colleague who suggests a minor revision, displacing their anger onto a safer target. This cycle can be perpetuated by several factors.

Workplace cultures that discourage expressing emotions can leave employees unsure of how to address their feelings appropriately (Malik & Pichler, 2022). This can lead to a build-up of unexpressed emotions that can manifest as displaced aggression (Vranjes et al., 2020). For instance, in South Africa, labour law stipulates that acts of aggression and intimidation, more specifically physical aggression, can be a dismissible offence (*Labour Relations Act*, 1995). This legal consequence can further suppress open communication of frustration, potentially leading to displaced aggression. Furthermore, aspects such as concern about professionalism and lack of trust in management can exacerbate the problem (Vranjes et al., 2020)**.** Employees may suppress their feelings and struggle to communicate effectively. This suppression can then lead to displaced aggression, where frustration is directed towards innocent third parties (Salguero et al., 2020)**.**

As previously stated, workplaces enforce a culture of civility, often discouraging even the most controlled expressions of anger (Vranjes et al., 2020). To highlight how workplace culture and cultural norms can exacerbate displaced aggression, the Korean workplace culture is discussed. Korean work culture, with its emphasis on hierarchy and respect for superiors, creates a breeding ground for displaced anger (Seo et al., 2012; Yeung & Bae, 2022). The term "gapjil" describes superiors who abuse their power (Yeung & Bae, 2022). A survey conducted in 2022, found nearly 30% of Korean office workers faced harassment and humiliation, with most choosing to stay silent or leave the company altogether (Yeung & Bae, 2022). This inability to confront superiors can lead to displaced aggression among colleagues, potentially escalating into bullying (Seo et al., 2012).

In addition, the consequences of displaced anger are also supported by a relatively recent study titled "A trickle-out model of organisational dehumanisation and displaced aggression" that explores how feeling like "less than human" at work can lead to negative consequences (Lagios et al., 2023). The researchers examined how organisational dehumanisation, the perception of being treated poorly by the company, contributes to displaced aggression, where frustration is taken out on colleagues instead of the source (Lagios et al., 2023). Their findings reveal a concerning link: when employees feel dehumanised, they are more likely to redirect their anger towards co-workers, which can then increase antisocial behaviours within the workplace

(Lagios et al., 2023). This suggests that creating a positive and respectful work environment is crucial to reducing conflict and fostering a productive work atmosphere (Lagios et al., 2023). This research suggests that feeling dehumanised at work can have far-reaching negative consequences (Lagios et al., 2023). It can lead to a chain reaction of aggression that can damage employees' personal lives and relationships (Lagios et al., 2023). These factors, combined with the fear of repercussions from superiors, create a complex landscape where displaced anger can become a prevalent issue in the workplace.

Displaced anger in the workplace doesn't always manifest in such overt ways. It can also take the form of passive-aggressive behaviours (Miller et al., 2003). The marketing manager, still fuming about the CEO's email, might subtly undermine the CEO's decisions in team meetings, offering seemingly innocuous suggestions that contradict the CEO's directive. They might also become withdrawn or sullen, exhibiting a general lack of motivation and negativity that impacts team morale (Lee et al., 2021; Seo et al., 2012). This negativity can spread like wildfire, poisoning the work environment and hindering productivity.

2.11 Expressions of Anger

To further comprehend the destructive nature of mismanaged anger, the types of anger displays are examined. A study by Biassoni, Balzarotti, Giamporcaro and Ciceri (2016) highlighted two distinct forms of anger expression: hot and cold. Hot anger is characterised by outward displays of frustration and aggression, such as screaming or cursing, which are often accompanied by non-verbal cues including confrontational gestures (Biassoni et al., 2016). The sudden intensity of hot anger can lead to displacement, in which individuals lash out at easily accessible targets instead of confronting the underlying source (Biassoni et al., 2016). For example, a stressed employee may snap at a coworker over a minor inconvenience, even though the coworker isn't responsible for the stressor. Expressions of hot anger can hinder productivity, increase conflict with coworkers and managers, have a bad impact on employee health, and even contribute to higher turnover rates (Kweon et al., 2008; Lee et al., 2021; Ohly & Schmitt, 2015).

Conversely, cold anger is a more detached emotional state (Biassoni et al., 2016). It manifests as simmering resentment that builds up over time due to perceived injustices or repeated annoyances (Biassoni et al., 2016). Outward aggression is less prevalent with cold anger, but it can manifest in subtle ways like jaw clenching or murmured obscenities (Biassoni et al., 2016). Cold anger, characterised by simmering resentment, can be a consequence of displaced hot anger. If someone repeatedly avoids addressing their anger at the source (perhaps due to

fear of conflict or a perceived lack of power as previously identified), it can accumulate and eventually erupt towards a less threatening target (Biassoni et al., 2016). For example, an individual may be repeatedly frustrated with their supervisor yet unwilling to communicate their dissatisfaction properly. This accumulated resentment may manifest as cold anger towards another driver on the road, leading to passive-aggressive behaviour or increased irritability. Expressions of cold anger can lead to decreased morale, communication, and trust, leading to poor relationships and collaboration in the workplace (Kweon et al., 2008; Lee et al., 2021; Ohly & Schmitt, 2015). As mentioned, displacement also may be upon targets outside of the workplace, for example on family, friends and significant others and also online, which will be discussed in full in section 2.13 (Allen & Anderson, 2017; Biassoni et al., 2016; Vranjes et al., 2020). However, before discussing this form of displacement the theoretical model for this research will be elaborated upon, below.

2.12 Theoretical Framework: Frustration Aggression Displacement Model (FADM)

While several models have been described above, to analyse the perception of work demands/stressors and how they are implicated in individual outcomes; for the present research and the variables that it is focusing upon, the most appropriate model for this study is that of the Frustration Aggression Displacement Model (FADM).

The Frustration Aggression Displacement Model (FADM) or the frustration-aggression theory by Dollard, Doob, Miller, Mowrer, and Sears was described as “the occurrence of aggressive behaviour always presupposes the existence of frustration and, contrariwise, that the existence of frustration always leads to some form of aggression” (Breuer & Elson, 2017, p. 1). The theory posits that when an individual encounters an obstacle or a hindrance that blocks the individual from achieving their desired goal then this leads to frustration (Breuer & Elson, 2017). Frustration then triggers and leads to anger and aggressive behaviour in response to the perceived injustice or difficulty (Breuer & Elson, 2017). The third component of the model, displacement, as previously noted by the theory of displaced anger and the expressions of hot and cold anger, highlights that frustration and aggression are not always directed to the original instigator but rather onto innocent or innocuous/less threatening parties that are perceived to be safer targets (Biassoni et al., 2016; Breuer & Elson, 2017; Salguero et al., 2020).

From a theoretical perspective and according to the FADM or the theory of displaced anger, there are certain situations when displaced anger is more likely to arise. The first occurs when

the incident and/or instigator that initially triggered the anger is no longer there. For example, if the instigator is unavailable (Allen & Anderson, 2017; Vranjes et al., 2020). The second scenario refers to when the instigating factor is intangible. Intangible triggers refer to those triggers which cannot be directly addressed or retaliated against (Allen & Anderson, 2017; Vranjes et al., 2020). An example of such an intangible trigger in the context of organisations could refer to the atmosphere and culture of the organisation (Vranjes et al., 2020). For instance, an environment that is characterised by an unhealthy culture of negativity, gossip, or bullying creates a constant undercurrent of stress. Even when an employee is not the direct target of such cases, the overall atmosphere can lead to a build-up of negativity that might be displaced onto others. The third scenario is when retaliating against the initial aggressor is perilous (as mentioned above) (Allen & Anderson, 2017; Vranjes et al., 2020). For example, antisocial conduct resulting from work-related stress or rage may not always manifest itself in the workplace especially if the person causing the anger in an individual is senior to them Employees may find it difficult to express their anger in the workplace due to the formal nature of the workplace, the rules and code of conduct that must be followed, and the significance of keeping their jobs (Vranjes et al., 2020). This can lead to suppressed emotions that must be dealt with or overcome to lessen the unpleasant emotional state. As a result, people tend to suppress their rage under these circumstances and channel it towards a weaker and more accessible target (Allen & Anderson, 2017). In such situations, the lack of control is also evident, as the individual has no power or means to control the source of stress and to fight against it.

2.13 Displaced Anger and Antisocial Online Behaviour (AOB)

As mentioned, angry individuals often displace their anger onto less threatening targets. In this regard, social media has become a prime landscape in which individuals can displace and vent their anger.

The rapid development of social media and technology has made it easier for people to act in an antisocial manner and express sentiments of misplaced aggressiveness (Vranjes et al., 2020). As previously said, people are more likely to direct their resentment towards a lesser and more approachable target if they are unable to vent their displeasure at the original stressor/instigator (Allen & Anderson, 2017). In that sense, the internet setting creates the ideal conditions for this kind of hostility. In addition to enabling anonymity in these circumstances, social media and networking sites have been found to offer other potential benefits, such as the absence of

social cues in online communication, a decrease in other people's social presence, and the absence of repercussions (Vranjes et al., 2020). The anonymity and lack of physical presence inherent in online platforms can create a breeding ground for negativity due to two psychological phenomena. Deindividuation (Diener, 1979) makes people feel less aware of themselves and the social norms that typically guide their behaviour. When online, the absence of eye contact and other social cues can lead to a feeling of anonymity, reducing the sense of self-awareness and personal responsibility for their actions (Diener, 1979; Vranjes et al., 2020). This disinhibition effect (Joinson, 2007) allows people to act in ways they wouldn't dream of in face-to-face interactions. Freed from the usual constraints, negativity flourishes, manifesting as harsh criticism, trolling, or even cyberbullying. In essence, the very features that make online platforms convenient can also create a situation where inhibitions are so lowered, that negativity is enabled to thrive.

Numerous scholarly investigations have pointed out the drawbacks of social media networking, highlighting how these platforms frequently function as arenas for antisocial online conduct such as cyberbullying (including hate speech and trolling), cyberstalking, and cyber harassment (Liu et al., 2022; Malik & Pichler, 2022; March et al., 2020). Despite the common belief that these activities are more common among teenagers, research has shown that adult workers are not insusceptible to cyberbullying (Malik & Pichler, 2022). A relatively recent research conducted in Pakistan indicated that organisational politics at work generated a stressful working environment which elevated an individual's sense of displaced rage, which in turn pushed them to engage in offline and online antisocial behaviour (Malik & Pichler, 2022). Despite these observations, the research on why working adults engage in AOB is limited. Building on the theory of displaced anger, the FADM model, and the concepts of deindividuation and disinhibition, the literature review argues that the work-related stress experienced by working individuals would lead to negative emotions such as anger, not being able to express these emotions result in displaced anger, which would subsequently manifest in AOB.

2.14 Definition and Types of Antisocial Online Behaviour (AOB)

As stated earlier, any conduct that deviates from accepted social norms for appropriate behaviour is considered to be anti-social behaviour (Allen & Anderson, 2017). The term ‘antisocial online behaviour’ describes the destructive and disruptive behaviours people participate in when using social networking sites and other online platforms (Cheng et al.,

2021). It encompasses behaviours that intentionally inflict emotional distress, damage reputations, or disrupt online communities (Allen & Anderson, 2017). AOB differs from simple disagreements or rudeness by its deliberate and often malicious intent (Allen & Anderson, 2017). There are many different forms of antisocial online behaviour namely cyberbullying, hate speech, threats, flaming, doxing, trolling, and liking hateful content. These are outlined below in more detail.

2.14.1. Definition of Cyberbullying

Cyberbullying can take a number of forms namely: threats, hate speech, flaming, doxing, and trolling (Fisher, 2013; Machackova et al., 2015; Agboola, 2023). These various forms of behaviours can be directed at a single individual or groups (Fisher, 2013). Cyberbullying, a specific form of Antisocial Online Behaviour, involves the frequent use of electronic communication to harm, harass, threaten, or shame another person (Machackova et al., 2015). This can include sending, posting, or sharing negative and harmful content about another person (Machackova et al., 2015). A study conducted in the Philippines, utilised a case study methodology, to identify the various types of cyberbullying experiences among the participants (Sanchez-Danday, 2023). The participants, aged 19-21, reported experiences such as body shaming on social media, being gossiped about online, impersonation through fake accounts, and being ridiculed online (Sanchez-Danday, 2023). In addition to these forms or types of cyberbullying, it is noted that all forms of Antisocial Online Behaviour are sometimes collectively referred to under the general umbrella of cyberbullying in studies (Fisher, 2013; Agboola, 2023).

2.14.2 Prevalence of Cyberbullying

As discussed above, cyberbullying occurs when an individual utilises technology and electronic communication to bully another person, such as by sending threatening messages, spreading rumours, or excluding another from online groups (Agboola, 2023). Research conducted within this domain highlights the growing concern for this form of behaviour among adults (Kowalski et al., 2018, Agboola, 2023).

A 2018 study highlighted the significant prevalence of cyberbullying, a recognised form of Anti-Social Online Behaviour, among adults (Kowalski et al., 2018). According to the study, 24% of the adult population reported experiencing their most recent cyberbullying incident during adulthood, with 20% stating that the majority of their cyberbullying experiences

occurred during this life stage (Kowalski et al., 2018). Additionally, the study revealed that cyberbullying perpetration among adults is not uncommon, with approximately 24% admitting to having cyberbullied someone at least once in their lifetime (Kowalski et al., 2018). Building on these findings, a 2023 study focused on cyberbullying among adults in the United Kingdom further underscores the seriousness of this issue (Agboola, 2023). The study found that a significant proportion of British adults have encountered cyberbullying, with younger adults aged 18 to 24 being particularly vulnerable - 55% of respondents in this age group reported experiencing cyberbullying (Agboola, 2023). The age group between 25 and 34 years old also reported a notable rate of cyberbullying, with 33% having experienced it (Agboola, 2023).

2.14.3. Hate Speech and Threats

Hate speech in particular refers to spreading hateful statements to attach or incite violence against a particular group of individuals based on characteristics or attributes including race, gender, religion, ethnicity, sexual orientation or disability (Andersen, 2021). Closely tied to hate speech are online threats, which are hostile statements or actions intended to intimidate or coerce an individual or group, often aiming to instil fear and psychological distress (Allen & Anderson, 2017). These threats can take many forms, including direct messages to individuals or more generalised threats against entire groups (Allen & Anderson, 2017). For instance, a direct threat might involve actions such as sending death threats, threats of physical violence, and threats of sexual assault, all of which aim to create a sense of fear and vulnerability in the targeted individual (Allen & Anderson, 2017).

However, like hate speech, threats can also be more expansive, targeting entire communities or groups based on their beliefs, ethnicity, religion, or other attributes (Fisher, 2013). A recent and poignant example of this broader application of threats and hate speech occurred in the United Kingdom following the tragic 29 July 2024, stabbing incident in Southport (Gaucher, 2024). In this case, social media became a platform for spreading disinformation, leading to heightened hostility and violent threats against the Muslim community. Far-right groups, fuelled by anger and misinformation, falsely linked the attack to Muslim asylum seekers, despite the suspect being a British teenager of Rwandan descent (Gaucher, 2024). The situation escalated rapidly as an AI-generated image depicting Muslim men in front of the UK Parliament with the caption, "We must protect our children!" was widely circulated on social media, garnering 900,000 views (Gaucher, 2024). This image and accompanying rhetoric incited widespread anger, leading to violent riots across the UK, particularly targeting mosques

(Gaucher, 2024). The threats and hate speech disseminated online not only fuelled these physical attacks but also created an environment of fear and insecurity for Muslims in the UK. This example illustrates how threats, when amplified by social media combined with hate speech, can move beyond individual targets and create a dangerous atmosphere of hostility against entire communities. The rapid spread of false information and the subsequent threats against Muslims demonstrate the potential for online rhetoric to incite real-world violence and perpetuate fear among targeted groups (Gaucher, 2024).

2.14.4. Flaming

Flaming refers to the act of posting hostile, aggressive, or inflammatory comments online, typically aimed at individuals in public forums or debates, with the intent to provoke a strong emotional response (Andersen, 2021; Agboola, 2023). This behaviour is characterised by excessively aggressive and derogatory remarks that can incite rage and contribute to a toxic online environment (Agboola, 2023). For instance, during an online discussion, one user might attack another's opinions harshly, such as posting, "You’re completely clueless and pathetic!". Flaming often discourages meaningful conversation and can create an atmosphere of hostility, making it difficult for constructive dialogue to occur (Allen & Anderson, 2017).

A prominent example of flaming occurred during the highly publicised Johnny Depp vs. Amber Heard defamation trial in 2022 (Nelson, 2024). Throughout the trial, social media platforms like Twitter and TikTok became inundated with flaming, particularly directed at Amber Heard (Nelson, 2024). Users posted a flood of hostile and inflammatory comments, often aimed at discrediting and attacking Heard with aggressive language intended to provoke emotional reactions from others (Andersen, 2021; Nelson, 2024). For example, comments like referring to Heard as a greedy vengeful liar were common, these were often accompanied by memes or edited videos designed to ridicule her (Nelson, 2024). This behaviour exemplified how flaming can escalate in high-profile cases, turning public discourse into a toxic environment where hostility overrides constructive discussion. The overwhelming amount of flaming not only influenced public perception but also highlighted the potential for social media to amplify negative behaviours, making it challenging to maintain respectful dialogue in the online space.

2.14.5. Doxing

Doxing, a term derived from "dropping documents," refers to the malicious act of publicly releasing personal information about an individual online, often with the intent to humiliate,

threaten, intimidate, or punish the victim (Douglas, 2016; Snyder et al., 2017). This practice can be executed through various means, such as exploiting security gaps, manipulating individuals into revealing confidential details or compiling and publicising information that is already accessible but not easily found (Snyder et al., 2017). Douglas (2016). identifies three primary types of doxing: deanonymising, targeting, and delegitimising.

Deanonymising doxing involves revealing the identity of an individual who was previously anonymous or using a pseudonym (Douglas, 2016). A notable example of this is the alleged identification of Satoshi Nakamoto, the pseudonymous creator of Bitcoin, by Newsweek magazine (Douglas, 2016). This type of doxing negated Nakamoto's anonymity, leading to unwanted attention and intrusion into his private life, despite his denials of being the creator of Bitcoin (Douglas, 2016). Targeting doxing focuses on disclosing information that could be used to locate an individual physically, thereby increasing the risk of harassment (Douglas, 2016). For instance, the identification of Michael Brutsch, known as Violentacrez on Reddit, by the blog Gawker, led to his legal identity being revealed, resulting in job loss and public harassment, and prompting Reddit to remove controversial subreddits he moderated (Douglas, 2016). Delegitimising doxing aims to undermine the victim's credibility by releasing private information that portrays them negatively (Douglas, 2016). A prominent example is the GamerGate controversy, where the personal details of game developer Zoe Quinn were leaked to damage her reputation, leading to severe harassment, intimidation, and threats of violence that profoundly affected her personal and professional life (Douglas, 2016). These examples illustrate the severe consequences of doxing, showing how it can escalate from online harassment to real-world dangers.

2.14.6. Trolling

Trolling refers to the malicious and deliberate act of provoking others online by making hurtful, provocative, and aggressive remarks intended to upset the victim or elicit an emotional reaction (Andersen, 2021; Liu et al., 2022). Trolls often take pleasure in the disruption they cause and may use humour or sarcasm to mask their malicious intent. This behaviour can be targeted at both individuals and groups, and it often contributes to toxic environments in online communities, where constructive dialogue is overshadowed by negativity and hostility.

A particularly tragic example of the impact of trolling is seen in the cases of South Korean celebrities Sulli and Goo Hara. Both endured severe online harassment, with Sulli facing

relentless body shaming and derogatory comments about her personal choices, while Goo Hara was subjected to invasive criticism of her private life (Kang et al., 2022). The trolls behind these attacks frequently used humour and sarcasm to intensify their malicious behaviour, creating a toxic environment that exacerbated the celebrities' mental health struggles (Andersen, 2021; Kang et al., 2022). Despite the seemingly trivial intent to provoke and disrupt, the unrelenting trolling played a significant role in their depression, ultimately leading to their tragic suicides (Kang et al., 2022). This underscores the devastating real-life consequences that such online behaviour can have.

2.14.7. Liking Hateful Content

The key aspect in the above-described AOB behaviours is the deliberate intent to cause harm or disruption online. Furthermore, research based on online behaviour, user engagement, and the bystander effect highlights the indirect impact of even passive actions such as liking a hate comment or video on social media (Machackova et al., 2015). A simple 'like' on hate speech not only signals approval but also tacitly supports and encourages such behaviour, thereby contributing to a broader hostile internet culture (Machackova et al., 2015). This suggests that even passive engagement with harmful content, such as liking hateful comments or videos, can be considered a form of AOB, as it plays a role in normalising and perpetuating aggression online.

2.15 Consequences of AOB

According to studies, people frequently use social media as a diversion, a way to decompress, or a way to express their feelings after a bad or challenging experience (Vranjes et al., 2020). Platforms like Facebook and Reddit host support groups where users can connect with others facing similar issues, offering a sense of community and understanding (Israel, 2023). Sharing experiences, offering advice, and receiving empathy can significantly alleviate stress (Sun et al., 2023; Wolfers & Utz, 2022). Social support provided through online communities can be a valuable resource for managing emotional distress (Sun et al., 2023; Wolfers & Utz, 2022). Additionally, humour and inspirational content on platforms like Instagram or blogs can provide a mental break, offering a momentary escape from stressors (Sun et al., 2023; Wolfers & Utz, 2022). The combination of social support, humour, and inspiration can contribute to improved well-being (Sun et al., 2023; Wolfers & Utz, 2022). Live-streaming services such as TikTok and Instagram create real-time connections, helping individuals feel less isolated and more supported (Israel, 2023; Wolfers & Utz, 2022). These diverse uses of social media can

significantly alleviate stress and improve overall well-being (Sun et al., 2023; Wolfers & Utz, 2022). However, problematic use of social media can lead to negative consequences, including mental health issues and social isolation.

The effects of Anti-social Online Behaviours (AOB) including cyberbullying, hate speech, threats, flaming, doxing, and trolling are profound, leading to significant psychological harm (Liu et al., 2022; Agboola, 2023). Harms caused by such behaviour impact both the victim and the perpetrator.

For the victim: these behaviours often result in a wide range of mental health issues, including anxiety, depression, and social isolation, as evidenced in various studies (Agboola, 2023; Sanchez-Danday, 2023; Zhu et al., 2021). For example, research conducted in the Philippines revealed that victims of cyberbullying commonly experience declines in self-esteem, feelings of betrayal, and severe anxiety, which can escalate to post-traumatic stress disorder (PTSD) (Sanchez-Danday, 2023). These findings align with broader research that emphasises how persistent hate speech and online threats can amplify fear and insecurity, resulting in long-term emotional trauma (Zhu et al., 2021). In more extreme cases, continuous harassment drives victims toward self-harm or suicidal thoughts, underscoring the severe impact these behaviours can have on mental health (Fisher, 2013; Liu et al., 2022). The tragic suicides of South Korean celebrities Sulli and Goo Hara, who were subjected to intense online trolling and body shaming, serve as examples of how relentless online abuse can exacerbate mental health struggles and lead to fatal outcomes (Kang et al., 2022). Furthermore, the hostile environments created by practices like flaming, doxing, and trolling isolate victims, eroding their sense of safety and well-being (Fisher, 2013; Liu et al., 2022; Agboola, 2023). Ultimately, these harmful behaviours, whether they manifest as direct attacks or passive endorsements through likes and shares, contribute to a toxic online culture with lasting and severe consequences for those targeted (Machackova et al., 2015).

Victim to Perpetrator: Additionally, exposure to AOB such as trolling and hate speech, not only affects victims emotionally but also increases the likelihood that they may become perpetrators themselves (Liu et al., 2022). This cyclical nature of AOB is a significant concern, as negative feelings and actions often elicit similar reactions in others, perpetuating a spiral of antisocial behaviour (Vranjes et al., 2020). Currently, Social media, rife with hate speech, trolling, and other forms of malevolent communication, further exacerbates this issue by acting

as a trigger that raises the likelihood of displaced anger and additional AOB (Vranjes et al., 2020).

For the Perpetrator: Social media platforms utilise algorithms that tailor user experiences and content, often amplifying negativity (Zimmer et al., 2019). The enactment of Anti-social Online Behaviour (AOB) not only has detrimental consequences for the targets but can also create a spiral of negativity for the perpetrators. Therefore, harassing others and engaging in negative behaviour would filter out positive content, leaving users trapped in a cycle of negativity (Zimmer et al., 2019). Ultimately, AOB can have harmful effects on both those who engage in it and those who are targeted (Kowalski et al., 2018; Vranjes et al., 2020). As previously mentioned, unfavourable online environments encourage initiators to engage in increasingly undesirable activities (Zimmer et al., 2019). Persistently acting in an antisocial manner online can have a profound negative psychological impact on the initiator, increasing tension, anxiety, and depressive symptoms, and further exacerbating the potential to spiral into even more antisocial behaviour (Nixon, 2014). This cycle of negativity not only perpetuates harmful behaviour but also deepens the emotional and mental toll on all involved.

To Summarise: The literature review so far has examined the various aspects of work-related stress, including its causes and implications, with reference to prominent models such as The Transactional Model of Stress and Coping, Karasek's Demand-Control Model, the Effort-Reward Imbalance Model, and the Job Demand-Resources Model. Additionally, it has explored the relationship between work stress and anger, the components of anger, and how anger can manifest as antisocial behaviour. The review has also addressed the concept of displaced anger, and its antecedents as outlined in the Frustration-Aggression Displacement Model as the main framework for the present study. In addition, the definition and types of Antisocial Online Behaviour (AOB), and the subsequent consequences of AOB have been outlined. However, another crucial area of importance is the differences in displaced anger and AOB between the genders.

2.16 Gender Variations in Stress, Anger, and AOB

The present study also sought to comprehensively understand the role of gender in the intricate relationships between work stress, anger, and antisocial behaviour (AOB). Research has highlighted that men and women experience and respond to work-related stress differently, with varying implications for their psychological well-being and behaviour (Gilbert-Ouimet et al., 2014; Jick & Mitz, 1985; Vranjes et al., 2020). However, it is important to acknowledge

that the research on gender differences in stress levels is nuanced and often yields conflicting findings (Gilbert-Ouimet et al., 2014; Jick & Mitz, 1985). While some studies suggest that women experience higher levels of work-related stress, other research highlights that both men and women are affected by work-related stress, which can lead to unfavourable feelings such as anger (Jick & Mitz, 1985; Vranjes et al., 2020).

2.16.1. Gender differences in Work-Related Stress

Jick and Mitz's (1985) offers a comprehensive framework for understanding gender differences in work-related stress, through a review of 19 empirical studies. They found that women tend to report higher levels of psychological distress, while men are more susceptible to severe physical illnesses (Jick & Mitz, 1985). Three main explanations are proposed: genetic/biological factors, structural factors (such as differences in work situations and role overload), and social/psychological factors (including cognitive appraisal and coping strategies influenced by socialisation) (Jick & Mitz, 1985). Although genetic explanations are limited, structural factors are deemed more influential, with women often experiencing additional stressors related to balancing work and family responsibilities (Jick & Mitz, 1985). Social/psychological factors also play a significant role, as men and women may internalise and respond to stress differently due to socialisation, leading to distinct patterns of stress-related symptoms (Jick & Mitz, 1985).

In addition, other studies support the notion that women may experience higher levels of work-related stress compared to men (Gilbert-Ouimet et al., 2014; Rivera-Torres et al., 2013). This disparity is attributed to multiple factors, including the dual burden of professional responsibilities and domestic duties, societal expectations, and the pervasive glass ceiling that limits career advancement opportunities for women (Jick & Mitz, 1985; Karin Calitz, 2022; Rivera-Torres et al., 2013). Women are frequently tasked with managing both their careers and household responsibilities, leading to increased stress levels and a higher propensity for burnout (Karin Calitz, 2022, Rivera-Torres et al., 2013). For instance, a 2022 McKinsey study revealed a significant gender gap in burnout rates, with 41% of women reporting burnout compared to 35% of men, and this gap continues to widen (Calitz, 2022).

The pressure to excel in both professional and personal domains, coupled with persistent gender discrimination in the workplace, contributes to the heightened stress levels observed in women (Calitz, 2022; Rivera-Torres et al., 2013; Taylor et al., 2000). If unaddressed, this stress can manifest in various forms of psychological discomfort, including anxiety, depression, and

anger (Gilbert-Ouimet et al., 2014; Rivera-Torres et al., 2013). Importantly, research from Sweden has identified young women as particularly vulnerable to burnout, further underscoring the gendered nature of stress and its consequences (Calitz, 2022). However, despite these differences in stress levels and origins, work-related stress affects both men and women and can lead to unfavourable emotional outcomes like anger (Vranjes et al., 2020).

2.16.2. Gendered Manifestations of Anger

While both men and women experience anger as a response to work-related stress, how they manifest and express this emotion differs significantly, influenced by deeply ingrained socio-cultural norms (Gianakos, 2002; Vranjes et al., 2020). Women, for instance, are often socialised to suppress overt expressions of anger, as societal expectations dictate that women should embody traits such as empathy, patience, and calmness (Fernandez & Malley-Morrison, 2013; Gianakos, 2002; Kring, 2000). Consequently, when women experience anger, they are more likely to internalise these feelings or express them in more covert ways, such as through passive-aggressive behaviours or displaced anger (Gianakos, 2002; Salguero et al., 2020).

The anonymity provided by online platforms offers women a unique outlet to express suppressed anger without the fear of societal repercussions (Diener, 1979; Joinson, 2007; Vranjes et al., 2020). As a result, women may be more inclined to engage in AOB as a way to vent their frustrations in a space where they are not directly identified (Diener, 1979; Joinson, 2007; Vranjes et al., 2020). This behaviour can be seen as an extension of displaced anger, where the online environment allows for the expression of emotions that might be repressed in face-to-face interactions (Diener, 1979; Salguero et al., 2020; Vranjes et al., 2020). However, it is important to note that the research on gender differences in cyberbullying, a form of AOB, is not consistent (Chan et al., 2021; Schodt et al., 2021). Some studies have found non-significant effects of gender on cyberbullying behaviours, suggesting that gender may not be the primary driver behind these behaviours (Chan et al., 2021). This calls into question the extent to which gender influences the likelihood of engaging in AOB, highlighting the need for further research to clarify these dynamics and understand the boundary conditions that might shape the effects of gender on AOB.

In contrast, men are generally afforded more social permission to express anger openly (Vranjes et al., 2020). Societal norms often associate masculinity with assertiveness and aggression, allowing men to display anger more directly (Fernandez & Malley-Morrison, 2013; Kring, 2000; Vranjes et al., 2020). Research by Vranjes et al. (2020) noted that although men

and women both experience displaced anger, men are more likely to engage in AOB as a result of work-induced anger. This may be partly due to the stronger link between a man's self-esteem and his work role, as well as the societal pressure to succeed in the professional sphere (Vranjes et al., 2020). The need to assert dominance or control in response to stress can lead to more overt and sometimes destructive manifestations of anger among men.

2.16.3. Gender Expectations in Anger Expression

The difference in how anger is expressed by men and women can be further understood through the lens of gender roles and expectations (Jick & Mitz, 1985). Women, who are often expected to be nurturing and compliant, may find themselves constrained in their ability to express anger in socially acceptable ways (Fernandez & Malley-Morrison, 2013; Gianakos, 2002; Kring, 2000). As a result, they might resort to more indirect forms of expressing anger, such as sarcasm, silent treatment, or passive resistance (Gianakos, 2002; Salguero et al., 2020). This can lead to internalised stress and a higher likelihood of experiencing psychological distress, such as depression or anxiety (Rivera-Torres et al., 2013). Additionally, as previously mentioned, the anonymity of online spaces can enable women to express anger in ways that might be repressed in other settings, leading to a potential increase in AOB (Diener, 1979; Joinson, 2007; Vranjes et al., 2020).

On the other hand, men, who are traditionally expected to be strong and assertive, may feel compelled to demonstrate their anger in more direct and visible ways (Vranjes et al., 2020). This can include actions that are socially recognised as masculine, such as confrontation, verbal outbursts, or even physical aggression. The societal validation of these behaviours as 'appropriate' expressions of male anger can perpetuate a cycle of AOB in men, where anger is not only expressed but also reinforced as a means of coping with stress (Vranjes et al., 2020).

2.16.4. Implications and AOB

The study "You Wouldn't Like Me When I'm Angry: A Daily Diary Study of Displaced Online Aggression in Dual-Earner Couples" provides crucial insights into gender differences in the relationship between work stressors, anger, and Antisocial Online Behaviour (AOB) (Vranjes et al., 2020). The study involved 95 dual-earner couples who reported their daily experiences of work stress, emotions, and online behaviours over five consecutive working days. Through this diary method, it was identified that men, when faced with daily work stressors, were more likely to feel anger after work, which in turn led to increased engagement in AOB throughout

the evening (Vranjes et al., 2020). This finding suggests that for men, AOB is a direct result of displaced aggression stemming from their own work-related stress (Vranjes et al., 2020). In contrast, women's engagement in AOB was not directly linked to their own work stressors but was instead influenced by their partner's stress and subsequent anger (Vranjes et al., 2020). This crossover effect suggests that women may be more affected by their partner's emotions than by their own work stress, potentially due to socialisation patterns that encourage women to be more attuned to the emotions and needs of others (Vranjes et al., 2020).

The study's findings underscore that men are more likely to experience a spillover effect where work-induced anger translates into AOB, possibly due to societal expectations that tie men's self-esteem and identity closely to their work performance (Vranjes et al., 2020). For women, the influence of their partner's stress on their AOB indicates a complex interplay between gender roles, emotional labour, and the dynamics of dual-earner relationships (Vranjes et al., 2020). The study highlights that the anonymity of the online environment facilitates the expression of these negative emotions, providing a platform for displaced aggression, particularly for men who experience direct work stress (Vranjes et al., 2020).

The literature outlined above seems to indicate that gender is implicated in ways that are inconsistent and plagued by a number of variations (Chan et al., 2021; Schodt et al., 2021). Some studies suggest that gender may not significantly influence the likelihood of engaging in bullying behaviours online, indicating that factors beyond gender, such as context or personality traits, might be more critical in driving AOB (Chan et al., 2021).

Nevertheless, the present research still aimed to contribute to the understanding of gender differences in the context of work stress, anger, and AOB within a South African sample to determine whether any significant differences could be observed. By focusing on the effects of stress and anger on AOB, this research aimed to provide a more holistic understanding of how these dynamics play out differently for men and women. By doing so, this research aimed to offer a more nuanced understanding of the gendered nature of anger and its consequences, ultimately informing interventions that can better support both men and women in managing work-related stress and preventing AOB.

2.17 Conclusion

To comprehend the variables being studied, their significance, and the relationship between them, the current study analysed published literature on work stress, displaced anger, antisocial

online behaviour, and the role of gender. Based on this review, it is suggested that work stress experienced by individuals gives rise to negative emotions such as anger (Fida et al., 2014; McLinton & Dollard, 2010; Penney & Spector, 2005; Smith et al., 2005; Vranjes et al., 2020). Demanding workloads, tight deadlines, poor interpersonal relationships, and a discrepancy between an individual's job demands and their resources can all contribute to a buildup of frustration and anger (Burman & Goswami, 2018; Universari & Harsono, 2021). This phenomenon applies to both men and women (Vranjes et al., 2020), highlighting the universality of work stress as a trigger for negative emotions.

In addition, the research on the Frustration Aggression Displacement Model along with the Theory of Displaced anger adds another layer to this picture by highlighting that feelings of anger are not always directed to the original cause or instigator of those feelings (Salguero et al., 2020; Vranjes et al., 2020). Rather, it is directed towards innocent third parties and objects considered easier targets (Allen & Anderson, 2017). The role of technology has been found to pave an easier way to redirect this displaced anger which has resulted in forms of antisocial online behaviour (Vranjes et al., 2020). The literature view explained the role of anonymity and the concepts of deindividuation and disinhibition in contributing to Antisocial Online Behaviour (AOB) (Diener, 1979; Joinson, 2007). Furthermore, the examination of the types of AOB including cyberbullying reveals a particularly harmful form of displaced anger online. Various tactics employed by cyber bullies, such as body shaming, backstabbing, and impersonation were identified as examples of real-world scenarios (Sanchez-Danday, 2023). These tactics inflict severe psychological distress on victims, potentially leading to anxiety, depression, social isolation, and even suicidal ideation (Zhu et al., 2021). This underlines the urgency of addressing AOB and promoting responsible online behaviour.

Based on the studies included in the literature review, it was found that women are more likely to experience work-related stress and its consequences such as burnout in comparison to men (Calitz, 2022; Rivera-Torres et al., 2013). It was also highlighted that due to experiencing a higher level of occupational stress, women are more likely at risk of higher levels of deteriorating mental and physical well-being (Rivera-Torres et al., 2013). Some of the health-related concerns that were identified included blood pressure, anxiety, anger, and heart-related issues (Calitz, 2022; Rivera-Torres et al., 2013). Likewise, studies have indicated gender differences in how anger is experienced and expressed, with displaced anger being more likely to occur in women (Gianakos, 2002). Based on these findings one would assume that women

would be more likely to express AOB. However, contradictory results were found in a study conducted in 2020 which found that men were more likely to engage in AOB due to work-induced anger (Vranjes et al., 2020).

In light of these ramifications, understanding the elements contributing to AOB is critical for developing focused solutions that encourage constructive online behaviour and foster a secure, healthy environment for everyone. While this study recognises the broader consequences of AOB for both victims and perpetrators, its scope is limited to exploring the indirect relationship between work-related stress and AOB, mediated by anger. The study will also investigate gender differences in these processes to contribute to the existing literature and offer insights into mitigating these negative outcomes.

Research Questions

Formulation of the research questions: Introduction

A large body of research evidence exists which demonstrates that work-related stresses can impact an individual's emotional response (Fida et al., 2014; McLinton & Dollard, 2010; Penney & Spector, 2005; Smith et al., 2005; Vranjes et al., 2020). One of the most common emotional responses associated with work-related stress is anger and aggression. Furthermore, it has been found that the expression of anger is not necessarily directed towards the original instigator of the anger but can also be directed to third parties. With the increase in technological advancements and the freedom of online expression, individuals find it easier to express themselves on online platforms especially if they can do so anonymously. The study aims to investigate the indirect relationship between work stress and antisocial online behaviour through the moderating/ mediating effect of anger and to examine any potential gender-related differences in this process. The specific research questions for this study are:

- To what extent is work-related stress related to displaced anger?
- To what extent is displaced anger related to Antisocial Online Behaviour (AOB)?
- Is work-related stress related to AOB?
- Does displaced anger play a mediating role in the relationship between workplace stress and Antisocial Online Behaviour (AOB)?
- Do these relationships and this process differ between genders?

In other words:

- Is there a correlation between work stress and displaced anger?
- Is there a correlation between displaced anger and Antisocial Online Behaviour (AOB)?
- Is there a correlation between work stress and AOB?
- Does displaced anger serve to mediate the relationship between Work Stress and AOB?
- Does this process differ between genders?

Hypotheses:

- Individuals' experience of work stress is associated with the experiences of displaced anger.
- Individuals' experience of displaced anger is associated with their engagement in AOB.

- Individuals' experience of work stress is indirectly associated with their engagement in AOB.
- Individuals' experience of displaced anger will mediate the effect of work stress on AOB.
- Men tend to engage in more AOB than women in relation to their experience of work stress and displaced anger.

Chapter 3: Methodology

This chapter describes the research design, sample and sampling technique, procedure, instruments, data analysis, and ethical considerations of the study.

3.1 Research Design

The study fits under the post-positivism paradigm and is relational. According to Panhwar et al. (2017), the post-positivism paradigm considers both the subjective and objective aspects of a study. Therefore, a quantitative, non-experimental, correlational, and cross-sectional design was utilised to determine the relationships and effects between work stress, displaced anger, antisocial online behaviour, and how these processes may vary across genders. The study used a quantitative and a non-experimental design as the study aimed to answer questions through an analysis of numerical data using one sample. A non-experimental design excludes the manipulation of the independent variable, the use of a control group, and the random assignment of participants to the experimental or control groups (Reio, 2016, p. 680). The study employed a cross-sectional design, meaning that data was collected at a single point in time. Without needing a long-term follow-up, this design was appropriate for examining the correlations and relationships between the study's variables. Additionally, statistical methods such as correlations and a mediation regression analysis were conducted.

3.2 Sample and Sampling

The study aimed to recruit a sample of working individuals from various organisations. The participants were selected from different companies in South Africa as well as students at the Wits Plus Centre for Part-Time Studies who are in full-time employment.

Non-probability sampling would be the appropriate type of sampling for this study. This means that participants for this study are included in the sample because they are available and willing to participate (Sharma, 2017). The sampling technique adopted was purposive sampling - this technique enables participant selection depending on the study’s objectives (Sharma, 2017). This technique is appropriate as the study aims to include working individuals. In addition, the study utilised convenience, volunteer, and snowball sampling techniques to recruit participants. Convenience sampling occurs when participants are selected because they are easily available. In addition, snowball sampling was used, which is a technique in which the researcher locates the first volunteers and then uses referrals to locate the rest (Taherdoost, 2016). This technique was employed to gain access to more working participants through the connection of initial

working participants that have been obtained. Thus, participants were asked, if possible, to refer the survey to other potential participants that they know (in their network) that meet the inclusion criteria (which is working full-time, over the age of 18 years old).

As mentioned, the study aimed to ideally recruit a minimum sample size of 100 to 150. However, one should consider the representativeness and generalisability of a sample of 100 to 150 individuals. The proposed sample falls between a small to moderate sample size. Hence, although it is sufficient for exploratory research, the findings might not be generalisable or representative of a larger population. It would therefore be ideal to get a larger sample to try to gain a sample that is demographically representative in relation to the South African population. In addition, in terms of power, a larger sample would be ideal to run the statistical analyses proposed in this study.

3.3 Instruments

The study utilised a questionnaire as the research instrument for collecting data. The questionnaire consisted of four sections: a demographic sheet, a work stress scale, a scale to measure emotions of displaced anger, and an antisocial online behaviour scale. The demographic sheet captured the demographic characteristics of the participants - such as gender, race, home language, age, marital status, and sector of employment (Refer to Appendix A - Demographic Questionnaire - Organisational sample and Appendix B - Demographic Questionnaire - Wits Plus sample).

Work-Related Stress (Appendix C): The scale that was utilised in the study to measure participants' stress levels comprised of three sub-scales by Spector (1998) - namely, the Interpersonal Conflict at Work Scale (ICAWS), the Organisational Constraints Scale (OCS) and the Quantitative Workload Inventory scale (QWI). These three subscales tap into the same domain of work stress even though they assess different aspects thereof (Spector et al., 2023). The ICAWS scale assesses interpersonal conflict that would contribute to work-related stress, the QWI assesses task-based stressors, and the OCS includes elements of both (Spector et al., 2023). More importantly, they can be used as a single measure to get a total stress score without measuring work stress in terms of three separate constructs.

The Interpersonal Conflict at Work Scale (ICAWS) is a four-item scale designed to assess interpersonal conflict at work. The items aimed to assess how well employees get along with others at work, how often they get into arguments with others, and how often they are rude to

others at work (Spector & Jex, 1998). This scale was measured on a 5-point Likert-type scale with responses ranging from 1 (Never) to 5 (Several times per day). Internal consistency relatability reported by Spector and Jex across 13 studies is 0.74 (Spector & Jex, 1998). A Cronbach alpha of 0.74 is considered to be a good internal consistency reliability score (Field, 2013). High scores on the scale represent frequent conflicts with others and high levels of anger experienced due to this. The possible range is from 4 to 20. An example of an item is "How often are people rude to you at work?".

The Organisational Constraints Scale (OCS) is an eleven-item scale designed to assess organisational constraints or situations that interfere with task performance at work (Spector & Jex, 1998). The scale was measured on a 5-point Likert-typer scale with responses ranging from 1 (Never) to 5 (Several times per day). Internal consistency reliability reported is 0.85 (Spector et al., 2023). A Cronbach alpha of 0.85 is considered to be a very good internal consistency reliability score (Field, 2013). Two more items were added to the scale to include more organisational constraints to ensure fuller cover of the construct (refer to item four and item 12). The addition of these items was done in consultation with subject matter experts. High scores on this scale represent high levels of constraints and high levels of anger experienced due to these constraints. The possible range of scores is from 13 to 65. An example of an item is "How often do you find it difficult or impossible to do your job because of poor equipment or supplies?".

The Quantitative Workload Inventory (QWI) scale is a five-item scale designed to assess the amount or quantity of work in a job as opposed to the difficulty of the work (Spector & Jex, 1998). This scale was measured on a 5-point Likert-type scale with responses ranging from 1 (Never) to 5 (Several times per day). Internal consistency relatability reported by Spector and Jex across 15 studies is 0.82 (Spector & Jex, 1998). A Cronbach alpha of 0.82 is considered to be a very good internal consistency reliability score (Field, 2013). The items of the scale were reworded to better suit this study and the South African context of the study. For example, the item "How often does your job require you to work very fast?" was changed to "Do you feel your job requires you to work too fast?". The scale ranges from 5 to 25, with higher scores indicating a greater quantity of work and demands placed on the employee as well as greater levels of anger associated. The changes made to the items were done in consultation with subject matter experts to ensure validity.

After the participants had answered all the above-discussed items for the work-related stress scales, they were required to answer an additional item. This item was added to assess overall anger concerning work-related stress. The item was measured using a 5-point Likert-type scale that asked respondents to make a tick on one of the boxes based on the question: 'On a scale of 1 to 5, **overall,** how angry or upset do you feel about your experiences of work stress as described in the above questions?'. This one-item was developed for the use of this study in consultation with subject matter experts. The score ranges from 1 to 5 with a high score indicating greater levels of anger experienced due to work stress.

Displaced Anger (Appendix D): The Displaced Anger scale utilised in the study is a ten-item scale that measures how likely individuals are to take out their anger on a third party. The scale was derived from the displaced aggression questionnaire created by Denson, Miller, and Pederson (Denson et al., 2006). The Displaced Aggression Questionnaire contains 3 subscales namely Anger Rumination, Revenge Planning, and Displaced Anger. For the use of this study, only the items belonging to the Displaced Anger subscale were utilised. The scale was measured on a 5-point Likert-type scale with responses ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Internal consistency reliability reported by Denson, Miller, and Pederson is a Cronbach alpha of 0.91 (Denson et al., 2006). A Cronbach alpha of 0.91 is a very good internal consistency reliability score (Field, 2013). The scale ranges from 10 to 50, with higher scores indicating a greater tendency to experience and exhibit displaced anger.

Antisocial Online Behaviour (AOB) (Appendix E): The scale that was utilised in the study to measure participants' engagement in AOB comprised 19 items. From these 19 items, 9 items measured negative online behaviour, 7 of these items measured positive online behaviour, and the remaining 3 items measured the time spent engaging in online behaviour and the platforms used. The usage of positive items interspersed with negative items was to try to limit social desirability bias in the responses to the negative items. The items were measured on a 5-point Likert-type scale ranging from 1 (Never) to 5 (Several times per day). Five of the 9 items that measured negative online behaviour are from the European Cyberbullying Intervention Project Questionnaire (Vranjes et al., 2020). The remainder of the items (4 items) were added to gain a more comprehensive understanding of the construct being measured. The added items were done with the consultation and opinions of subject matter experts to ensure the validity of the construct being measured. High scores on the negative items indicate higher antisocial online behaviour engagement. The 7 positive items used in the Online Behaviour Scale were accessed

from the Online Civility Scale (OCS). The OCS by Beseler, Jones, and Mitchell (2021) was adapted from a prior study (Jones & Mitchell, 2016) to be suitable for their sample. The Cronbach alpha coefficient reported is 0.85. A Cronbach alpha of 0.85 is a very good internal consistency reliability score. Whilst the study does not aim to measure positive online behaviour, these items were, as mentioned, included in the scale to avoid social desirability bias or any other response bias.

3.4 Procedure

As previously mentioned, participants were recruited through various organisations that were approached as well as Wits Plus students who attend evening classes at the University of the Witwatersrand and who are in full-time employment. The process was conducted through the approval and permission of the HR managers in organisations as well as the relevant faculty and course coordinators at the Wits Plus Centre (Appendix F - access letter to organisations and Appendix G - access letter to Wits Plus Course Coordinator). These individuals were approached and supplied with a Participant Information Sheet that provided them with the necessary information regarding the study. Once their approval was given employees received communication from the HR managers and Course coordinators facilitated this process by posting an email announcement on the Wits Plus learning platform, Ulwazi. Accompanying these emails all prospective participants were supplied with a Participant Information Sheet explaining the study to them and inviting them to participate (Appendix H - PIS for Organisational Sample and Appendix I - PIS for the Wits Plus Sample).

To access a larger sample, the students from Wits Plus were encouraged to share the survey link within their own professional and personal circles with anyone they knew who met the criteria (this involved being above the age of 18 and being employed in full-time positions at an organisation). In addition, the recruitment process involved circulating email invitation letters containing the survey link, the Participant Information Sheet (PIS), and an advertisement (refer to Appendix J and K – email invitation for organisational and wits plus sample as well as Appendix H and I – PIS for organisational and wits plus sample). These materials were initially sent to friends and colleagues who were encouraged to forward them to their networks, enabling snowball sampling. Additionally, the study was promoted on social media platforms including Instagram, WhatsApp, Facebook, and LinkedIn, further broadening the reach of the recruitment effort.

The method of data collection was a questionnaire that included a brief demographic section along with three scales to measure work stress, displaced anger, and antisocial online behaviour. The length of the questionnaire was approximately 52 questions. Scales included in the questionnaire will be 5-point Likert-type scales with responses ranging from 1 (Never) to 5 (Several times per day). The questionnaire also included scale items with a dichotomous response format. The dichotomous items, in particular, were used in the AOB scale to determine if behaviours engaged in were done using anonymous accounts or personal accounts where the person engaging in the behaviour could be identified by their name.

Furthermore, the questionnaire utilised clear instructions and simple and easy-to-understand terminology with close-ended questions. The target population was working individuals who were assumed to be proficient in the level of English required to answer these questions. Taking these factors into consideration, the approximate time to complete the questionnaire was approximately 30 minutes.

The procedure that the study utilised includes collecting data through the use of online survey platforms. This process would involve designing and creating the questionnaire on an online survey platform called Survey Monkey. Once the questionnaire had been created, as mentioned, employees received the invitation through the HR manager and the course coordinator put up an email invite announcement on Ulwazi (Appendix J - Email Invitation for Organisational Sample and Appendix K - Email Invitation for Wits Plus Sample). Thus, Wits Plus students received an announcement invitation in their student emails. In terms of employees from organisations, if the HR manager does not wish to share email lists, alternatively the researcher would share the email invitation link with the HR manager who would enable it is then sent to all employees' emails in the organisation.

The email introduced the purpose of the research, included a Participation Information Sheet (attached), and provided an encrypted link to the questionnaire. The Participation Information Sheet (PIS) informed and provided participants with the necessary information regarding the study (Appendix H and Appendix I). This included the purpose and aims of the research, instructions for completing the questionnaire, and informed consent (Appendix L) to provide the researcher with permission to use their responses as part of the data. In addition to briefing individuals, the PIS also informed the participants of their responsibilities in completing the questionnaire as well as how the data will be used for the present research and the possibility of it being used for future publications and conference proceedings. Furthermore, the PIS

informed participants of their rights and the ethical considerations that were met. This includes informing the participants of their right to withdraw, how the study ensured that anonymity and confidentiality were met, and how data was stored.

The online platform that was utilised is a website called SurveyMonkey, which collected the quantitative responses from the participants. After having given their consent (Appendix L), participants completed the questionnaire. As previously mentioned, the questionnaire should have taken participants approximately 30 minutes to complete. Each participant was only able to complete the questionnaire once, this was to ensure that participants were not submitting more than one set of responses. The estimated time to gather approximately a minimum of 100 to 150 responses through this process was a one-to-two-month period. At the end of this period, the link to the questionnaire was closed and the data was secured for the data analysis process. Reminders via email were sent to participants at weekly intervals to try to ensure as many responses as possible.

As mentioned, participants were asked to pass on the survey link to any potential participants who met the criteria for the study, that is over 18 years of age and in full-time employment. Thus, a form of snowball sampling was also utilised.

3.5 Data Analysis

IBM SPSS Statistics Version 29 was used to generate the data analysis for the quantitative outcomes. The study utilised both descriptive and inferential statistics to examine the data. The term "descriptive statistics" describes the numerical and graphical methods that are employed to arrange, examine, and interpret data (Fisher & Marshall, 2009). The scale of measurement of the variables determines the kind of descriptive statistics that are used (Fisher & Marshall, 2009). The demographic portion of the questionnaire was recorded using frequencies and percentages (Field, 2013). This is because the demographic variables of the demographic section will have a scale measure of categorical or nominal variables.

Descriptive statistics were used to analyse the three assessment instruments utilised in the survey, namely, work-related stress, displaced anger, and antisocial online behaviour. Since Likert-type scales were used to measure each of these variables, the measurement scale for each of the three variables was at least interval. Hence, the descriptive statistics that were used to measure the variables included the minimum, maximum, mean, standard deviation, skewness coefficients, and kurtosis coefficients (Field, 2013). The latter two were used to

assess the normality of the data, that is, whether the data is normally distributed and suitable for the use of parametric analyses. Furthermore, Cronbach Alpha coefficients were examined to verify that the instruments used in this study meet the requirements for internal consistency reliability. (Field, 2013).

Inferential statistics are the second kind of statistics that were used in this investigation. Inferential statistics refer to mathematical methods used that are used to test a hypothesis or to generalise findings from a sample to a broader population of interest (Allua & Thompson, 2009). To examine the research questions and hypotheses, this study utilised statistical tools including correlations and mediated regression analysis.

3.5.1 Correlation Analysis

Correlations are used to determine if a correlation or relationship between two variables is statistically significant (Asuero et al., 2006). In this study, the researcher aimed to answer questions by exploring the relationship or correlation between work stress, emotions of displaced anger, and antisocial online behaviour. There are two types of correlations one can report on, the parametric Pearson's correlations and the non-parametric Spearman's correlations (Asuero et al., 2006). To determine the type of correlations to use, the tests for a parametric assumption were conducted. These include an at least interval-dependent variable (antisocial online behaviour) and, as mentioned, a normal distribution of the data (Field, 2013). The normality of variables was tested through skewness coefficients, kurtosis coefficients, the central limit theorem, histograms, and tests of normality (Field, 2013).

The correlation analyses provided answers to research questions 'Is there a correlation between work stress and displaced anger?' and 'Is there a correlation between displaced anger and Antisocial Online Behaviour (AOB)?' (stated above on page 17). The analysis also enabled an answer as to whether to accept or reject the hypothesis for the research question 'Is there a correlation between work stress and AOB? (stated above on page 17).

The correlation coefficient, represented by the symbol r, can have a positive or negative value based on whether one variable is associated with another in a way that makes it increase or decrease (Marshall & Jonker, 2011). A perfect positive relationship is represented by a value of +1, and a perfect inverse or negative relationship is represented by a value of -1. According to Marshall and Jonker (2011), if the r value is zero, there is no link between the two variables. According to the research hypotheses: high scores on the independent variable (work stress)

should be associated with high levels of displaced anger. This means as work stress increases, displaced anger is also expected to increase. Similarly, high scores on the independent variable (displaced anger) should be associated with high levels of antisocial online behaviour. Thus, in both instances, a positive correlation was expected. Based on this, it was hypothesised that the individuals' experience of displaced anger would mediate the effect of work-related stress on Anti-Social Online Behaviour (AOB).

3.5.2 Mediated Regression Analysis

The next inferential statistic that was conducted for this study is a mediated regression. A mediated regression is a valuable tool that allows one to understand the complex and causal relationships where one variable influences another through an intermediate variable (Hayes, 2018). A mediated regression analysis was conducted to determine the indirect effects or the relationship between an independent variable (work stress) and a dependent variable (antisocial online behaviour) through a mediated variable (displaced anger) (Hayes, 2018). Furthermore, the analysis was used to determine if there are any differences between the process across genders. This means the study examined whether the relationship between stress and anger, and its manifestation in antisocial online behaviour is stronger or weaker for one gender when compared to the other.

However, before one can run the mediated regression analyses, it is important to determine if the study meets the various assumptions of the test. The assumptions that need to be met to conduct a mediated regression include: all variables (IV, MV, and DV) being assessed are measured on a continuous scale, independence of observations, all variables are assumed to have a normal distribution, the assumption of linearity, the assumption of homoscedasticity, no multicollinearity, and no outliers (Hayes, 2018).

For the assumption of independence of observations to be met, the errors associated with one observation should not correlate to the errors associated with another observation (Hayes, 2018). To assess for this assumption, the researcher assessed for non-random patterns in the residual scatterplots. In a regression model, normality or the normality of residuals refers to the error in the relationship between the variables. Each case in the sample has a residual value that represents the discrepancy between the observed and projected values (Field, 2013). For this assumption to be true, the residuals or noise distribution for each case in the sample must be normally distributed. To determine if this assumption is met, the study conducted visual inspection tests on the regression standardised residual histogram and the Q-Q plots of the

residual from each regression model. The bell shape on the histogram allowed researchers to determine if the assumption of normal residuals has been met or not. Whereas, on the Q-Q plots, if the points roughly form a straight diagonal line, then the assumption has been met. Other ways to determine normality include statistical tests such as the Shapiro-Wilk test and the Kolmogorov-Smirnov test (Field, 2013).

The next assumption, the assumption of linearity is met when the relationships among the variables (IV, MV, and DV) are linear (Hayes, 2018). To assess this assumption, the researcher utilised scatterplots that were generated on the SPSS software. This allowed the researcher to conduct a visual inspection of a linear relationship between the variables. If the points on the scatterplot fall roughly along a straight diagonal line - then this will indicate that a linear relationship between the variables exists (Hayes, 2018).

The next assumption is referred to as homoscedasticity. For homoscedasticity, the variance of errors or residuals at each level of the independent variables must be the same or similar (Hayes, 2018). This means that the spread of residuals should be similar at different levels of the independent variable. It is vital to meet this assumption as marked homoscedasticity can have significant impacts on the findings by weakening the analysis and increasing the probability of a Type 1 error (Field, 2013). To determine if the study met this assumption, the researcher conducted a visual inspection of the residual plots. If the plot indicates no fixed or obvious pattern, then the assumption has been met.

The second final assumption that needs to be tested for mediated regression analysis is multicollinearity. Multicollinearity in statistics refers to the phenomenon where two or more predictors in a regression model are strongly correlated with one another (Field, 2013). The assumption needs to be met as multicollinearity can impact the assessment accuracy of the individual effects on each variable. One way to test for multicollinearity is by producing collinearity statistics on SPSS, this provides one with a Variance Inflation Factor (VIF). A VIF value indicates whether a predictor has a strong linear relationship with another predictor(s). According to Field (2013), if the largest VIF is greater than 10 then there is cause for concern. Another way to assess for multicollinearity is by assessing the tolerance values. If the tolerance values are greater than 0.2 then there is no multicollinearity concern, and the assumption has been met.

To determine if the fifth assumption of outliers and influential points has been met, the study looked at the values generated for Cook's Distance (which need to be less than one), Leverage points (this is assessed using a cut-off that is calculated by k+1/n * 3 – where k is the number of predictor variables), Mahalanobis' Distance (the critical value for 2 IV's is 13.82, hence the values need to be less than 13.82) and standardised residuals (the values need to be between -3 and +3).

The research question (stated on page 17), 'Does Displaced Anger (DA) play a mediating role in the relationship between workplace stress and Antisocial Online Behaviour (AOB)?' was addressed by the mediation analysis. The analysis also addressed the research question, 'Do these relationships differ between genders?' (stated above on page 17). This allowed the researcher to determine whether to accept or reject the hypotheses, 'Individuals' experience of displaced anger will mediate the effect of work stress on AOB', and 'Men tend to engage in more AOB than women in relation to their experience of work stress and displaced anger' (stated above on page 18).

3.6 Ethical Considerations

The proposal was submitted to the Human Research Ethics Committee (HREC) at the University of the Witwatersrand to receive approval. An approved ethical clearance certificate was received for the study (Protocol Number: MAORG-24-09) (refer to Appendix M). As mentioned above, when obtaining participants for the study, permission was obtained from the organisations participating (Appendix F). Furthermore, permission was obtained from the relevant faculty and course coordinator of participants for Wits Plus students participating in the study (Appendix N). It is also important to note that when using Wit's students as a sample, permission from the University Registrar also has to be obtained. This letter was only granted once the HREC gave ethical approval (Appendix N). As previously discussed, all participants of the study were given a Participation Information Sheet (PIS) that was attached to the questionnaire that explained and ensured that all ethical requirements were met (refer to Appendix H and Appendix I). The PIS discusses the purpose and aims of the study, the procedure of how data will be collected, it informs the participants of how the data will be used for the present research, and it indicates the possibility of using the data for future research publications or conference proceedings. The PIS also highlighted any potential risks and benefits associated with participation as well as the ethical considerations that were met. The ethical considerations that were met are as follows:

Voluntary Participation: Participation in the study was completely voluntary. Employees from organisations that chose to participate in the study received no benefits for doing so and did not face any repercussions if they chose not to partake in the study. Similarly, Wits Plus Students who did not wish to partake in the study faced no consequences. However, it is to be noted that Wits Plus first-year students who did choose to complete the questionnaire received an additional 1% towards their grades. This is because completing the questionnaire allowed them to engage in research participation. It is important to note that if first-year Wits Plus students did not wish to participate in the present study, they could have chosen from many other research projects to get the 1%. Thus, there was no pressure on them to participate in this study to gain the incentive.

Anonymity and Confidentiality: Anonymity of all participants was ensured as no personally identifiable information such as names of participants, name of organisation, ID numbers, or staff numbers were requested. However, in terms of the students from the Wits Plus sample, the researcher collected student numbers to ensure that the Wits Plus participants were rewarded the 1% for their participation. Once the student numbers were recorded and submitted to the course coordinator, they were deleted from the data set - thus ensuring the anonymity of the Wits Plus sample. As the collection was done using the online platform, that is, Survey Monkey, any IP addresses collected through this platform can serve as an identifier, therefore, they were also deleted immediately after the data was downloaded into the data spreadsheet, thus further ensuring anonymity. Additionally, to encourage individuals to provide honest responses, the study ensured confidentiality and anonymity by reporting group results only and by informing participants in the PIS that this is the case. This prevented the identification of any individual participant's responses. Once the responses to the questionnaire were submitted by the participants, they were kept in a password-protected file for safekeeping. Responses to the questionnaire were only accessible to the researcher and her supervisor.

Informed consent: another ethical requirement that was met is informed consent. Informed consent indicates to the researcher that the participant is freely choosing to participate in the study and that the participant is giving permission to the researcher to utilise the data for their study. Within the survey link, after the PIS page, there was a page where the participant indicated via a tick box (I agree to participate in this study) Yes or No (Refer to Appendix L). The PIS informed participants of the possibility that the data could be utilised for future

research publications and conferences. Permission to do so was requested as part of the informed consent.

Right to withdraw: All participants had the right to withdraw from the study at any point. However, the right to exercise the right to withdraw was not applicable once the questionnaire had been submitted. Completion and return of the questionnaire was taken as an additional form of consent from participants to use the response for statistical analysis and research purposes. This is because all the questionnaires were submitted anonymously, hence it was not possible to remove an individual set of responses once it had been submitted. Furthermore, selecting the 'yes' option on the consent form that precedes the online questionnaire acted as informed consent from participants for their responses to be used in this research. The researcher's contact details along with HREC contact details were provided to participants in the PIS for queries regarding their participation.

Access to research findings: since the questionnaire was anonymous, no individual feedback could be given. However, a summary of the overall research findings could be provided to the participants and the organisations upon request. Furthermore, the research was placed in the University's online repository (WIRedSpace) and summarised findings may be used for future research publications or conference proceedings. However, as mentioned, findings would only reported as general trends and therefore the responses would remain completely anonymous, and participants were informed of this.

In terms of levels of risk as defined by the HREC, the study itself, for individuals who choose to participate is a minimal-risk study. It was considered to be a minimal-risk study as it did not involve any invasive procedures that may cause any psychological harm to the participants. The study did not involve any form of deception as participants are likely aware of the general ideas behind workplace stress, anger, and antisocial online behaviour. The target population of the sample did not include any vulnerable population who might be at risk of exploitation. However, the study could have invoked negative feelings and unhappy memories for some participants which may also make participants hesitant to be honest about sensitive concepts such as anger and antisocial online behaviour. Due to this reason, and social judgement, the participant may also fear being judged by the researcher and the supervisor. Although the study aimed to ensure that such risks are largely addressed through the ethical considerations of anonymity, confidentiality, informed consent, right to withdraw, and protecting the data by only the researcher and the supervisor accessing it, some participants may have felt anxious or

stressed after filling in the survey. In this event, it was noted in the PIS that if any participant feels stressed after filling in the survey a free consultation with therapists at the Emthonjeni Centre (at the University of the Witwatersrand) can be provided for them. Thus, a protocol for any feelings of stress or dysphoria after filling in the survey was put in place. To book the free consultation, the PIS provided all participants with the contact details of the administrator at the Emthonjeni Centre (refer to Appendix H and Appendix I).

3.7 Summary and Conclusion

The current chapter outlined the aim of the study which is investigating the relationships between Work Stress, Displaced Anger, and Antisocial Online Behaviour (AOB). This chapter indicates that the study employed a quantitative, non-experimental, correlational, and cross-sectional design. Data for this study was collected through an online survey using purposive, convenience, and snowball sampling techniques. Furthermore, ethical considerations, including informed consent, anonymity, and confidentiality, were addressed. The following Results chapter will elaborate upon all the results based on the statistical analyses described above.

Chapter 4: Results

A comprehensive discussion of the quantitative analyses used to answer the main research questions and hypotheses is given in this chapter. IBM SPSS Statistics version 29 was used to examine the data, using descriptive and inferential statistical techniques. Descriptive statistics, such as measures of central tendency, variability, and distribution patterns (e.g., skewness and kurtosis), provided fundamental insights into the dataset. The study's hypotheses were thoroughly tested using inferential procedures like Pearson Correlations and Mediated Regression Analysis. Tables are used to present the results, clearly explaining the statistical outputs and their applicability to the study's objectives.

4.1 Preventative Measures

To guarantee the accuracy and suitability of the dataset, several crucial preliminary actions were performed before starting any analyses. After importing the data into SPSS, all scale items and total scores were changed to continuous data types to better reflect their nature, whereas biographical variables were kept as nominal (categorical). Imputation was not necessary after a careful examination of the dataset showed no missing data (Field, 2013).

4.2 Descriptive Statistics

4.2.1 Demographic Variables

The study initially included a sample of 183 participants; however, following the application of inclusion and exclusion criteria, 33 participants were eliminated from the dataset for a variety of reasons: one did not give their consent, one was a student rather than a full-time employee (a crucial requirement for the study), and the remaining participants did not finish more than half of the survey. Because incomplete replies and individuals who did not match the inclusion criteria could introduce biases, skew the results, or influence the findings' generalisability, excluding these participants was essential to preserving the study's validity and reliability (Field, 2013). Five notable outliers were found through additional research utilising box plots to verify parametric assumptions for correlations. Due to the impact these five outliers had on the assumption of normality, they needed to be eliminated (Field, 2013). As a result, 145 people made up the final sample for the analysis.

A number of demographic factors, such as gender, race, home language, age, marital status, work level, and job sector, were subjected to descriptive statistics (Table 1). All 145 responses were found to be legitimate, and the analysis verified that there were no missing data for any

of the variables. The sample's gender distribution was 28.3% male and 71.7% female. With the majority being Indian (34.5%), the distribution of ethnic demographics was varied, with White (29.0%), Black (26.2%), Coloured (7.6%), and Asian (2.8%) making up the next largest percentages.

Table 1: Sample Demographic Characteristics

Characteristic		Frequency (n)	Percentage (%)
Gender			
	Female	104	71.7
	Male	41	28.3
	Other	0	0
Race			
	Black	38	26.2
	White	42	29.0
	Coloured	11	7.6
	Indian	50	34.5
	Asian	4	2.8
	Other	0	0
Home Language			
	English	97	66.9
	Afrikaans	15	10.3
	isiZulu	5	3.4
	isiXhosa	5	3.4
	isiNdebele	2	1.4
	Sesotho	1	0.7
	Sepedi	5	3.3
	Setswana	6	4.1
	siSwati	2	1.4
	Tshivenda	2	1.4
	Xitsonga	3	2.1
	Other	2	1.4
Age Range			
	18-28 years old	70	48.3

	29-38 years old	34	23.4
	39-48 years old	22	15.2
	49-58 years old	15	10.3
	58+ years old	4	2.8
Marital Status			
	Single	88	60.7
	Married	48	33.1
	Divorced	6	4.1
	Widowed	2	1.4
	Separated	1	0.7
Job Level			
	Entry Level	36	24.8
	Intermediate	37	25.5
	Junior Management	21	14.5
	Middle Management	26	17.9
	Upper Management	13	9.0
	Executive	10	6.9
	Other	2	1.4
Job Sector			
	Information Technology	39	26.9
	Accounting and Finance	25	17.2
	Business, Consulting, and Management	27	18.6
	Education	16	11.0
	Hospitality	9	6.2
	Other	29	20.0

English was the most predominant home language (66.9%), with Afrikaans coming in second (10.3%). Setswana (4.1%), Sepedi (3.4%), isiZulu (3.4%), isiXhosa (3.4%), and Xitsonga (2.1%) were other noteworthy home languages. While 1.4% of individuals claimed to speak other languages, smaller numbers spoke isiNdebele, siSwati, and Tshivenda (1.4% each). Lastly, Sesotho was spoken by 0.7% of the sample.

Participants were grouped according to age, with ages ranging from 18 to 58+. Over half of the participants, or 48.3% of the participants were in the 18-28 age range. Of the remaining participants, 23.4% were between the ages of 29 and 38, and 15.2% were between the ages of 39 and 48. The age groups of 49-58 years (10.3%) and 58+ years (2.8%) were smaller. In terms of marital status, 33.1% were married, while the majority (60.7%) were single. The percentage of the sample that was widowed (1.4%), divorced (4.1%), or separated (0.7%) was lower.

Intermediate job levels accounted for the majority of the sample (25.5%) followed by entry-level (24.8%), Middle management (17.9%), and junior management (14.5%) represented a range of work levels. Executive positions (6.9%) and senior management (9.0%) had fewer participants. Only 1.4% of participants were classified as belonging to other job-level categories. Job sectors were also diverse. Information technology accounted for the highest percentage of the diversified job sectors, with 26.9%, followed by business, consulting, and management (18.6%), accounting and finance (17.2%), and education (11.0%). These demographic traits offer important background information for comprehending the sample's composition and the generalisability of the study's findings and also offer important insights into understanding the results of the present study (which will be elaborated upon in the Discussion chapter to follow, Chapter 5).

4.2.2 Frequencies and Percentages of Anonymous Accounts

In addition to the above-discussed percentages, a total of nine items were analysed to determine the frequency of negative behaviours conducted using anonymous accounts. As these items were categorical (utilising a yes/no response format), frequencies and percentages were conducted to describe the distribution of responses rather than measures of central tendency such as a mean score. Appendix O presents the frequencies and percentages for each item. Overall, the vast majority of participants reported not engaging in these behaviours anonymously, with the percentage of “No” responses (indicating behaviour was not conducted using an anonymous account) ranging from 95.2% to 98.6% across the items.

For Item 1, 7 participants (4.8%) reported engaging in the behaviour using an anonymous account, while 138 participants (95.2%) reported not using an anonymous account. For Item 2, 6 participants (4.1%) indicated anonymous behaviour, compared to 139 participants (95.9%) who did not. Similarly, for Item 3, only 2 participants (1.4%) reported engaging in the behaviour anonymously, with 143 participants (98.6%) responding “No”.

For Item 4, 4 participants (2.8%) engaged in the behaviour anonymously, while 141 participants (97.2%) did not. In item 5, similar to Item 2, 6 participants (4.1%) used an anonymous account and 139 participants (95.9%) responded "No". For Item 6, 3 participants (2.1%) indicated anonymous behaviour, while 142 participants (97.9%) did not. Items 7 and 8 followed a similar pattern – 3 participants (2.1%) engaged in anonymous behaviour for both items, with 142 participants (97.9%) responding "No" for each. Lastly, for Item 9, 5 participants (3.4%) used an anonymous account, while 140 participants (96.6%) reported not doing so.

These results indicate that most participants did not rely on anonymity to engage in these behaviours within this sample, with the highest percentage of anonymous behaviour observed for Item 1 (4.8%) and the lowest for Item 3 (1.4%).

4.2.3 Main Variables

Three main variables were investigated in this study: Work-related Stress (WS), Displaced Anger (DA), and Antisocial Online Behaviour (AOB). Work-related stress is identified as the independent variable of the study, while Antisocial Online Behaviour (AOB) is the dependent variable. Within the model, Displaced Anger is examined as a mediating variable or as an additional predictor. Likert-type scales were used to evaluate all three variables, with each having an interval measurement level. Descriptive statistics such as mean, standard deviation, skewness, kurtosis, and minimum and maximum values were used to summarise the data in light of this interval measurement (Field, 2013). For every variable, these statistics offer a thorough overview of the data distribution. Table 2 displays the descriptive statistics for the primary variables, WS, DA, and AOB.

Work-Related Stress (WS): There are 145 participants in the WS variable, and their scores range from 23 to 105. With an average WS score of 44.15, participants generally reported moderate levels of stress connected to their jobs. The significant variation in WS levels among participants is indicated by the standard deviation of 16.48. Given that a greater percentage of participants reported lower levels of WS and fewer reported higher levels of stress, the skewness score of 1.35 suggests a positive skew (Field, 2013). A leptokurtic distribution, which has a prominent central peak and longer tails than a normal distribution, is revealed by the kurtosis coefficient of 1.81. Nevertheless, the distribution is suitable for normality because the kurtosis stays within the generally recognised range of -3 to +3 (Kallner, 2018).

Table 2: Descriptive Statistics for Main Variables

Variable	N	Minimum	Maximum	Mean	SD	Skewness	Kurtosis
WS_Sum	145	23	105	44.15	16.48	1.35	1.81
DA_Sum	145	10	43	21.12	8.28	0.57	-0.48
AOB_Sum	145	9	17	10.21	1.76	1.68	2.54
Valid N (listwise)	**145**						

Note: WS_SUM = Work-Related Stress, DA_Sum = Displaced Anger, and AOB_Sum = Anti-Social Online Behaviour

Displaced Anger (DA): The mean score for DA is 21.12, with a range of 10 to 43. Participants show a moderate degree of displaced anger, according to the mean score, which is in the middle of the available range. The DA scores exhibit moderate variability, as indicated by the standard deviation of 8.28. A slight positive skew is indicated by the skewness value of 0.57, which indicates that most participants preferred to report lower levels of displaced anger. The distribution can be regarded as generally normal since its skewness is within the permissible range of -1 to +1 (Field, 2013). The distribution is somewhat platykurtic, with fewer extreme values than would be predicted from a normal distribution, according to the kurtosis value of -0.48. The distribution stays within the appropriate range for normality since the kurtosis is substantially within the acceptable range of -3 to +3 (Kallner, 2018).

The mean score for Antisocial Online Behaviour (AOB) was 10.21, with scores ranging from 9 to 17. Participants' levels of antisocial online behaviour are modest, as evidenced by the mean's proximity to the lower bound of the possible range. The sample's AOB level variability is comparatively low, as indicated by the standard deviation of 1.76. The majority of participants showed modest levels of AOB, whereas a small number reported greater levels of this behaviour, according to the skewness value of 1.68, which shows a substantial positive skew. The AOB distribution is extremely leptokurtic, with noticeable outliers and clustering of data around the mean, according to the kurtosis value of 2.54 (Field, 2013). The distribution stays within the appropriate range for normality since the kurtosis is substantially within the acceptable range of -3 to +3 (Kallner, 2018). Nonetheless, the results of some statistical studies

may be impacted by these extreme values, and the ensuing inferential analyses will take this into account (Field, 2013).

Overall, the data point to low levels of Antisocial Online Behaviour and moderate levels of Work-related Stress and Displaced Anger among participants. The distribution patterns of these variables within the sample are also revealed by the skewness and kurtosis values.

4.3 Reliability Analysis

All scales underwent reliability testing before inferential analyses to ensure their consistency and appropriateness for additional statistical research (Field, 2013). This stage was essential in assessing the reliability and potential for consistent results across participants of the measures used to assess Work-related Stress, Displaced Anger, and Antisocial Online Behaviour. Cronbach's alpha, a measure of reliability, verified that the scales had satisfactory levels of internal consistency, enabling their confident use in subsequent analyses.

4.3.1 Reliability Analysis for Work-Related Stress (WS) Scale

Following the removal of outliers using Cronbach's alpha, the internal consistency of the Work-Related Stress (WS) scale was reevaluated. With a Cronbach's alpha value of 0.941, the results demonstrated a good degree of internal consistency for the 23-item WS scale (Table 3). Excellent internal consistency is indicated by a Cronbach's alpha value of 0.942, which suggests that the items are quite trustworthy for assessing stress at work (Field, 2013). With a standard deviation of 1.016 and a mean score of 42.39 for the entire WS scale, the scale statistics indicated some response variability. Significant correlations between the items were further shown by the inter-item correlation matrix, indicating that the items are closely related and support the internal reliability of the scale.

After evaluating each item on the WS scale, the averages varied from 1.37 to 2.66, while the standard deviations ranged from 0.78 to 1.36. This range of variability indicates that while participants' responses were consistent across items, there were minor differences in the sample's individual experiences of stress related to their jobs. This high degree of internal consistency attests to the WS scale's validity as a tool for evaluating participants' levels of work-related stress.

Table 3: Reliability Statistics for Scales

Scale	Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	Number of Items
Workplace Stress	0.941	0.942	23
Displaced Anger	0.889	0.896	10
AOB	0.543	0.559	9

By computing Cronbach's alpha if every item was removed, the internal consistency of the WS scale was further investigated (Table 4).

Table 4: Item-Total Statistics for Work-Related Stress

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
ICAWS1	42,52	255,196	,479	,553	,940
ICAWS2	42,78	256,312	,521	,640	,940
ICAWS3	42,30	248,060	,657	,685	,938
ICAWS4	42,74	251,625	,685	,678	,938
OCS1	42,52	249,571	,639	,850	,938
OCS2	42,45	248,707	,712	,722	,937
OCS3	42,22	245,604	,672	,735	,938
OCS4	42,38	246,376	,665	,701	,938
OCS5	42,37	246,194	,710	,683	,937
OCS6	42,59	249,703	,635	,844	,938
OCS7	42,61	256,074	,524	,580	,940
OCS8	41,72	241,159	,703	,679	,937
OCS9	42,26	251,566	,576	,595	,939
OCS10	42,08	249,265	,643	,627	,938
OCS11	42,36	245,454	,717	,762	,937
OCS12	42,37	247,372	,670	,679	,938
OCS13	42,47	247,779	,729	,737	,937
QWI1	41,54	246,542	,555	,632	,940

QWI2	41,57	243,400	,620	,761	,939
QWI3	41,64	245,884	,634	,720	,938
QWI4	41,49	243,988	,606	,768	,939
QWI5	42,63	259,124	,467	,471	,940
Overall	41,76	253,518	,524	,435	,940

The purpose of this analysis was to ascertain whether eliminating any particular item would increase the scale's overall reliability (Field, 2013). With an overall Cronbach's alpha of 0.941, the WS scale demonstrated strong internal consistency among its 23 items. Only a slight decrease in alpha was observed when specific items such as ICAWS1 ($\alpha = 0.940$) and ICAWS3 ($\alpha = 0.938$) were deleted, indicating that these items were not problematic. Additionally, eliminating items like OCS8 ($\alpha = 0.937$) or OCS11 ($\alpha = 0.937$) resulted in slight variations in Cronbach's alpha, indicating that every item improved the scale's dependability. None of the items significantly reduced Cronbach's alpha, indicating that every item reliably assessed the underlying construct of stress at work. Eliminating any one of them would not substantially increase the scale's reliability. Thus, the WS scale's current structure is robust, and all 23 elements ought to be kept providing a thorough and accurate evaluation of work-related stress.

4.3.2 Reliability Analysis for Displaced Anger (DA) Scale

With a Cronbach's alpha of 0.889 for all 10 items, the Displaced Anger (DA) scale showed strong internal consistency, indicating that it is a valid tool for measuring displaced anger (Field, 2013). The reliability would not be substantially affected by standardising the items, according to the high Cronbach's alpha based on standardised items (0.896) (Table 3). The majority of the items show moderate to strong connections with each other, with inter-item correlations ranging from 0.148 to 0.709. For instance, DA4 had a strong association with DA5 (0.675) and DA6 (0.636), but DA1 had the strongest relationships with DA2 (0.709) and DA5 (0.654). Indicating that some items might not be as tightly aligned with the broader construct, the weaker inter-item correlations, such as DA4 with DA10 (0.148), nevertheless contribute to the overall reliability of the scale.

According to the item-total statistics, the reliability of the scale would not be significantly increased by eliminating any of the items (Table 5). Each item has a high association with the overall scale score, as seen by the adjusted item-total correlations for the majority of items above 0.60. DA7, on the other hand, has a lower corrected item-total correlation (0.477), and

its removal would raise Cronbach's alpha to 0.892, suggesting that it would marginally improve internal consistency. Similarly, DA10 has the lowest corrected item-total correlation (0.363), and if any one item is removed, Cronbach's alpha would increase to 0.896, the highest alpha value. Even with these possible enhancements, the scale's overall reliability is still strong, and the modifications are minimal (Field, 2013). In conclusion, the DA scale shows strong reliability. The scale is robust overall, even though items DA7 and DA10 marginally reduce the internal consistency. To ensure a thorough evaluation of misplaced anger, every item is kept.

Table 5: Item-Total Statistics for Displaced Anger

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
DA1	19,15	56,199	,718	,607	,872
DA2	19,27	55,906	,727	,608	,871
DA3	18,51	54,335	,663	,585	,875
DA4	18,59	53,494	,714	,630	,871
DA5	19,12	54,063	,750	,652	,869
DA6	19,39	56,518	,733	,599	,872
DA7	18,44	56,276	,477	,246	,892
DA8	19,18	55,843	,610	,422	,879
DA9	19,66	59,406	,637	,516	,879
DA10	18,81	60,226	,363	,257	,896

4.3.3 Reliability Analysis for Anti-Social Online Behaviour (AOB) Scale

4.3.3.1 Reliability before Outliers were removed

Across nine items, the Anti-Social Online Behaviour (AOB) scale has a Cronbach's alpha of 0.734, indicating acceptable reliability. The internal consistency of the AOB scale is still suitable for research purposes, despite its moderate level of reliability showing somewhat lower dependability when compared to the other scales (Field, 2013). The smaller number of questions or the possibility of more variation in participant replies regarding online activity could be the cause of the lower alpha. The somewhat higher Cronbach's alpha (0.782) based on standardised items indicates that standardising the items increases consistency, albeit not

significantly. In addition, the majority of the items have a moderate link, according to inter-item correlations, which range from 0.038 to 0.636. AOB16 may not be closely associated with other items on the scale, as items AOB9 and AOB12 show the strongest correlation (0.636), while items AOB11 and AOB16 show the lowest (0.038). Since they make up a larger portion of the whole scale, items AOB9, AOB12, and AOB1 typically show stronger connections with other items.

Table 6: Item-Total Statistics for AOB

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
AOB1(N)	9,43	5,509	,483	,426	,698
AOB3(N)	9,32	4,769	,621	,553	,666
AOB4(N)	9,53	6,412	,388	,319	,725
AOB7(N)	9,31	5,328	,438	,411	,706
AOB9(N)	9,47	5,781	,504	,579	,700
AOB11(N)	9,44	5,886	,385	,355	,715
AOB12(N)	9,52	6,251	,504	,556	,715
AOB13(N)	9,30	5,487	,397	,235	,713
AOB16(N)	9,17	5,120	,315	,159	,750

According to item-total statistics, the majority of items make a sufficient contribution to the overall reliability of the scale (Table 6). Cronbach's alpha would increase to 0.750 if AOB16, which has the lowest corrected item-total correlation (0.315), were removed. This suggests that eliminating this item could slightly increase internal consistency. AOB3, on the other hand, has the greatest corrected item-total correlation (0.621), indicating that it is highly aligned with the overall scale. Reliability would be reduced if it were removed, as Cronbach's alpha would drop to 0.666. The corrected item-total correlations for the majority of the other items fall into the moderate range (0.385 to 0.504), indicating that they contribute reasonably well to the overall construct (Field, 2013).

4.3.3.2 Reliability after Outliers Were Removed

With a Cronbach's alpha of 0.543 across 9 items, the Anti-Social Online Behaviour (AOB) scale shows decreased reliability following the removal of outliers (Table 3). The impact of outlier removal, which was required to meet the data's assumption of normality, is reflected in

this notable decline in reliability. The elimination of these outliers guarantees more reliable results in further statistical studies, even though the internal consistency is currently regarded as borderline for research purposes (Field, 2013). Although not much, standardising the items increases consistency, as evidenced by the somewhat higher Cronbach's alpha based on standardised items (0.559). In addition, with correlations ranging from -0.057 to 0.417, inter-item correlations show that most items have poor associations with one another. AOB12 may not be closely associated with other items on the scale, as items AOB1 and AOB3 have the highest correlation (0.417) while items AOB12 and AOB13 have the lowest (-0.057). Items AOB3, AOB7, and AOB13 typically have stronger connections with other items, indicating that they contribute more to the scale as a whole.

While some items have a small impact on overall reliability, others, such as AOB12 and AOB16, have much lower adjusted item-total correlations (0.055 and 0.145, respectively), according to the item-total statistics (Table 7). Cronbach's alpha would increase to 0.592 if AOB16, which has the lowest corrected item-total correlation, were deleted. This would suggest a minor improvement in internal consistency. While AOB3 is well-aligned with the overall scale and has the highest corrected item-total correlation (0.416), its removal would further reduce reliability by lowering Cronbach's alpha to 0.451. According to Field (2013), the majority of additional items have adjusted item-total correlations in the lower range, indicating that their contributions to the overall construct are minimal. In conclusion, while the AOB scale shows reduced reliability following the elimination of outliers, the choice to move forward was made in order to satisfy statistical assumptions, acknowledging that further improvement of the scale's items could enhance its internal consistency.

Table 7: Item-Total Statistics for AOB after outliers were removed

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
AOB1(N)	9,12	2,609	,287	,222	,502
AOB3(N)	9,03	2,284	,416	,352	,451
AOB4(N)	9,19	2,986	,209	,158	,535
AOB7(N)	9,00	2,278	,408	,298	,453
AOB9(N)	9,15	2,824	,253	,171	,518
AOB11(N)	9,12	2,785	,151	,125	,539

AOB12(N)	9,19	3,074	,055	,074	,550
AOB13(N)	8,98	2,243	,397	,195	,455
AOB16(N)	8,87	2,295	,145	,061	,592

4.3.3.3 Explanation (Proceeded despite low reliability)

The decision to eliminate outliers was crucial for obtaining a normally distributed dataset, which is crucial for parametric studies, even though the decline in reliability may seem concerning (Field, 2013). Outliers have the potential to skew statistical test results and produce inaccurate conclusions, especially when it comes to the assumption of normality (Field, 2013). Since correlation and mediation mostly rely on the assumption of normally distributed data, eliminating these extreme data points guarantees that the dataset satisfies the requirements for additional statistical analysis (Field, 2013). Furthermore, the scale's usefulness is unaffected by its decreased reliability following outlier removal. Although the reduced alpha indicates that some items may need to be improved in future iterations of the scale, the remaining items still capture significant aspects of AOB. Scales that measure broader dimensions or have more diversified items typically have lower reliability in psychological research (Field, 2013). Therefore, even with the decline in reliability, the AOB scale is still a valuable tool for identifying differences in online conduct, particularly in light of the significance of taking statistical analysis assumptions into account.

4.3.4 Summary of Reliability

The reliability analysis (Table 3) of the three scales - Work-related Stress (WS), Displaced Anger (DA), and Anti-Social Online Behaviour (AOB) - demonstrates varying degrees of internal consistency, indicating their reliability for research purposes. There is no single item on the Workplace Stress scale that would significantly increase dependability if eliminated, and the scale has a high Cronbach's alpha of 0.941, indicating great internal consistency. With a Cronbach's alpha of 0.889, the Displaced Anger scale likewise exhibits strong reliability; eliminating any item would not appreciably improve the scale's overall consistency. The AOB scale's dependability dropped to 0.543 after outliers were eliminated. Despite this decrease, outliers had to be eliminated to satisfy the normality assumption for further analyses. As a result, even if the AOB scale's reliability is reduced after outlier removal, it still offers insightful information on antisocial online behaviour. In summary, all three scales can be successfully used in the current research because they are sufficiently dependable in their existing forms and don't require any items to be changed or eliminated for additional analysis (Field, 2013).

4.4 Inferential Statistics – Parametric Assumptions Continue Here

To determine whether the study satisfies the requirements for doing parametric analyses, the relevant assumptions were examined. As previously mentioned, the primary variables - work-related stress (WS), displaced anger (DA), and antisocial online behaviour (AOB) - were assessed using Likert-type scales, which satisfied the requirement that the dependent variable (AOB) be quantified at least at the interval level (Field, 2013).

4.4.1 Normality Before Outliers

In addition to the two formal tests of normality, Kolmogorov-Smirnov and Shapiro-Wilk, the second assumption, the normality of the data, was investigated using a variety of techniques, such as the Central Limit Theorem (CLT), Skewness and Kurtosis coefficients, and visual examinations of histograms (Field, 2013). Normality is a key assumption for parametric statistical tests, which require the data to follow a normal distribution to ensure the validity of probability statements and test results (Field, 2013).

The assumption of normality is supported by the central limit theorem because the sample size is greater than 30 (n = 150) (Field, 2013). Nevertheless, additional confirmation through additional methods is necessary. Kurtosis values between -3 and +3 are frequently utilised as the threshold for skewness, while values between -1 and +1 are typically regarded as acceptable for normalcy (Field, 2013; Kallner, 2018). Table 2 shows that the skewness coefficients for Work-Related Stress (1.322), Displaced Anger (0.548), and Antisocial Online Behaviour (2.752) indicate that while Displaced Anger is within the permissible range, Work-related Stress and AOB are positively skewed. In addition, Work-Related Stress (1.786) and Displaced Anger (-0.507) have kurtosis values between -3 and +3, whereas AOB has a high kurtosis value of 9.428, indicating a leptokurtic distribution with extreme outliers. Positive skewness, such as seen in AOB and Work-Related Stress, means that most participants reported lower scores, with a small number of high scores causing the skewness. According to Field (2013), the leptokurtic distribution for AOB implies that extreme values - either extremely high or extremely low - are more common than in a normal distribution, which may have an impact on how the data behaves under parametric assumptions.

Therefore, while Work-Related Stress and AOB show deviations from normality, Displaced Anger, as determined by skewness and kurtosis values, is assumed to be normal. When interpreting the data, these variances should be considered (Field, 2013). To further assess the

data's normality, other tests such as the Shapiro-Wilk and Kolmogorov-Smirnov were used (Table 8).

Table 8: Tests of Normality

Variable	Kolmogorov-Smirnov Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
WS Sum	.123	150	<.001	.891	150	<.001
DA Sum	.098	150	.001	.948	150	<.001
AOB Sum	.276	150	<.001	.644	150	<.001

Note: WS Sum = Work-Related Stress, DA Sum = Displaced Anger, and AOB Sum = Anti-Social Online Behaviour

The Kolmogorov-Smirnov and Shapiro-Wilk tests were the normality tests employed in this investigation to evaluate the distribution of the sample data. The tests should yield non-significant results if a variable is normally distributed; they are usually shown by p-values higher than the alpha level of 0.05 (Field, 2013). The results for the three primary variables in this study, however, namely Work-Related Stress (WS), Displaced Anger (DA), and Antisocial Online Behaviour (AOB), yielded significant p-values ($p < 0.001$), indicating deviations from normality for both the Shapiro-Wilk and Kolmogorov-Smirnov tests, as indicated in Table 3. Specifically, the Shapiro-Wilk and Kolmogorov-Smirnov statistics for WS were 0.891 ($p < 0.001$) and 0.123 ($p < 0.001$), respectively, indicating non-normality. Likewise, for DA, the Shapiro-Wilk test produced a value of 0.948 ($p < 0.001$) and the Kolmogorov-Smirnov test produced a statistic of 0.098 ($p = 0.001$), indicating that the data is not normally distributed. Last but not least, significant deviations from normality were confirmed for AOB by the Shapiro-Wilk statistic of 0.644 ($p < 0.001$) and the Kolmogorov-Smirnov statistic of 0.276 ($p < 0.001$).

Although both tests show non-normality, it's crucial to remember that they might be too sensitive and may yield substantial results even in cases when the deviations from normality are minor. Additionally, studies indicate that skewness and kurtosis offer more valuable information about the data's normality because the Shapiro-Wilk test by itself cannot explain why a variable might not be normally distributed (Kallner, 2018). Therefore, while evaluating

the results, more consideration of the distribution should be given to the deviations found in the skewness and kurtosis values.

In addition, to visualise the distribution of important variables in this study, histograms were created using SPSS and a normal curve was generated for comparison (refer to Appending P). According to Field (2013), a bell-shaped curve usually indicates that the data are regularly distributed. Visual examination revealed that the curves added to the histograms for the WS_Sum, DA_Sum, and AOB_Sum variables, typically had a bell-shaped structure, especially for the WS_Sum and DA_Sum data. Even while AOB_Sum showed some skewness, the curve's general shape remained close to normal, and the visual examination supported the statistical results of high kurtosis and positive skewness.

Ultimately, data transformations were not used despite these deviations from normality. Despite its potential for normalising distributions, data transformation was not pursued for several reasons. Firstly, after having conducted transformations, there was no major impact on correlations, the results were still non-significant. Secondly, although it could improve skewness and kurtosis coefficients (which were eventually improved by removing outliers), it did not have a major impact on the normality tests either. After having consulted with a statistician, due to the above reasons, the researcher decided not to use data transformations. Additionally, Glass, Peckham, and Sanders contend that normalising transformations in terms of more legitimate probability assertions frequently yields little return and is not worth the work (Field, 2013). Additionally, transformations can alter the hypothesis being tested, shifting from comparing arithmetic means to comparing geometric means, which may lead to complications in interpreting the data (Field, 2013). Furthermore, using the incorrect transformation may have more detrimental effects on the statistical model than examining scores that have not been changed (Field, 2013). In light of these issues and considering the central limit theorem's applicability with a sample size of 150, and the histogram's results, it was decided that using robust parametric processes instead of data transformation was more appropriate. Since extreme values can significantly affect skewness and kurtosis, the researcher looked for substantial outliers rather than applying transformations (Field, 2013).

4.4.2 Outliers

Box plots were created and analysed for every scale to check for outliers (refer to Appendix P). Since the data points for the Workplace Stress (WS) and Displaced Anger (DA) scales fell within an acceptable range, the analysis showed that there were no significant outliers in these

variables. On the Anti-Social Online Behaviour (AOB) scale, five instances were flagged to be significant outliers. The box plot distribution was used to identify these outliers as extreme values, and they were then eliminated from the dataset. By eliminating significant outliers found by visual inspection of boxplots, the approximation to normality was enhanced, especially for the AOB scale. By making this modification, the data was guaranteed to satisfy the assumptions necessary for reliable parametric testing. After these outliers were eliminated, correlational analyses were carried out using the corrected dataset. By removing these instances, the possibility of distorted results from extreme values is reduced and the data is guaranteed to satisfy parametric testing assumptions (Field, 2013).

4.4.2.1 Normality Post Outliers Removal

The descriptive statistics were recalculated following the removal of the five significant outliers found in the Anti-Social Online Behaviour (AOB) scale (Table 9).

Table 9: Descriptive Statistics for Main Variables Post Outlier Removal

Variable	N	Minimum	Maximum	Mean	SD	Skewness	Kurtosis
WS_Sum	145	23	105	44.15	16.477	1.346	1.811
DA_Sum	145	10	43	21.12	8.281	0.571	-0.480
AOB_Sum	145	9	17	10.21	1.763	1.683	2.541

Note: WS_SUM = Work-Related Stress, DA_Sum = Displaced Anger, and AOB_Sum = Anti-Social Online Behaviour

Stress at Work (WS): The WS scale's mean was 44.19 (SD = 16.362) before the outliers were eliminated, and it is currently 44.15 (SD = 16.477). The decision to keep the majority of the dataset unaltered was supported by the small changes in WS, which indicate that these scales were largely unaffected by outliers. A minor shift in distribution was indicated by the slight rise in skewness from 1.322 to 1.346 and kurtosis from 1.786 to 1.811.

Displaced Anger (DA): The DA scale's mean was 21.27 (SD = 8.262) before outliers were eliminated, and it is now 21.12 (SD = 8.281). Similar to WS, there was minimal change in the mean and standard deviation, suggesting that the DA data was not much impacted by the removal of outliers. Kurtosis changed from -0.507 to -0.480, while skewness increased from 0.548 to 0.571, indicating a very minor movement in the distribution's structure.

Anti-Social Online Behaviour (AOB): As anticipated from the removal of the outlier, the AOB scale indicated the most notable changes. Between 10.56 (SD = 2.623) and 10.21 (SD = 1.763), the mean and standard deviation both experienced considerable declines. These outliers' extreme values were causing the AOB scale's high skewness and kurtosis, which could skew the results of parametric tests, so eliminating them was essential. Following the removal of the extreme values, the skewness, which was previously quite high at 2.752 decreased to 1.683. Similarly, the kurtosis coefficient was quite high at 9.428, decreased to 2.541, indicating a much more normal distribution after the removal of outliers.

4.4.2.2 Normality Tests

The elimination of outliers did not substantially impact the distributions' overall normality, according to the findings of the Shapiro-Wilk and Kolmogorov-Smirnov normality tests (Table 10). The test statistics for the WS and DA scales showed minimal changes, and both distributions remained significantly non-normal, with p-values less than 0.001. The Shapiro-Wilk score increased from 0.644 to 0.726, indicating a better but still non-normal distribution, while for AOB, the distribution is still non-normal ($p < .001$) even after the outliers were eliminated.

4.4.2.3 Summary of Outliers

The AOB scale's descriptive statistics showed observable benefits once outliers were eliminated, especially in terms of lowering extreme skewness and kurtosis and bringing the distribution closer to normal. The WS and DA scales, on the other hand, showed just slight variations, suggesting that the outliers had no discernible effect on these variables. This demonstrates that, although the other scales were largely unaffected, AOB was the scale for which the outlier reduction was most relevant.

Table 10: Tests of Normality Post Outlier Removal

Variable	Kolmogorov-Smirnov Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
WS Sum	.131	145	<.001	.887	145	<.001
DA Sum	.099	145	.001	.946	145	<.001
AOB Sum	.298	145	<.001	.726	145	<.001

Note: WS Sum = Work-Related Stress, DA Sum = Displaced Anger, and AOB Sum = Anti-Social Online Behaviour

4.4.3 Linearity

Scatterplots generated on SPSS were used to visually inspect the linear relationships between three variable pairs: Work-Related Stress (WS) and Anti-social Online Behaviour (AOB), Displaced Anger (DA) and AOB, and Work-Related Stress (WS) and Displaced Anger (DA) (refer to Appendix P). To visually assess the degree of linearity, linear regression fit lines and their accompanying R^2 values were added to each plot. If the data points show a steady trend and create a pattern that reasonably fits with the fit line, the assumption of linearity is usually satisfied (Field, 2013). Although the associations are weak, it can be claimed that the premise of linearity is satisfied based on the fit lines in the plots.

4.4.3.1 Linearity Pair 1: Work-Related Stress (WS) and AOB

There is a minor increasing trend in the scatterplot that shows the association between WS_Sum and AOB_Sum. The regression line shows that AOB_Sum increases marginally when WS_Sum increases while having a very small slope. The fit line and the existence of a positive slope suggest that there is some, however slight, linear correlation. Even though it is small, the R^2 value of 0.006 shows that WS_Sum only partially accounts for the variability in AOB_Sum. One could argue that the requirement of linearity has been satisfied because the fit line shows a discernible trend (Field, 2013).

4.4.3.2 Linearity Pair 2: Displaced Anger (DA) and AOB

Similarly, the relationship between DA_Sum and AOB_Sum is shown in the second scatterplot. AOB_Sum marginally increases when DA_Sum grows, indicating a favourable correlation even though the regression line's slope is tiny. Given that the data points generally match, if weakly, with the fit line, the existence of this upward slope indicates that there is some degree of linearity in the relationship between these two variables. The presence of a positive trend supports the idea that linearity exists, even though the R^2 value is low at 0.004, meaning that DA_Sum can only account for 0.4% of the variance in AOB_Sum. Even with some dispersion, the data points cluster around the regression line, indicating that the linearity assumption has been satisfied, though the strength of the relationship is weak (Field, 2013).

4.4.3.3 Linearity Pair 3: Work-Related Stress (WS) and Displaced Anger (DA)

In contrast to the previous two plots, the scatterplot analysing WS_Sum and DA_Sum shows a more pronounced positive trend. The regression line's slight upward slope suggests that DA_Sum tends to rise in tandem with WS_Sum. This trend supports the idea. Even though it only accounts for a small portion of the variation, the fit line's apparent linear trend indicates that WS_Sum is a predictor of DA_Sum, even though the R^2 value is still low at 0.008. This pattern supports the linearity assumption (Field, 2013).

4.4.3.4 Summary of Linearity

The fit lines in each of the three scatterplots show that there are linear correlations between the variables, however, they are not very strong. Regression line slopes consistently demonstrate that slight changes in the outcome variables (AOB_Sum and DA_Sum) correspond to changes in the predictor variables (WS_Sum and DA_Sum). The existence of these linear trends suggests that the linearity assumption has been satisfied, even though the R^2 values are low. Although the relationships are weak, confirming linearity is essential as it allows for the use of parametric tests like Pearson Correlations and Mediation Analysis, which rely on this assumption.

Comparatively, the strongest trend was seen in the association between Work-Related Stress and Displaced Anger, with an R^2 of 0.008; the other pairs displayed lesser relationships, with R^2 values of 0.006 and 0.004, respectively. Despite their dispersion, the data typically follow the fit lines' proposed direction. The weak linear correlations suggest that other factors might be influencing the result variables, which should be addressed in future research. This will be discussed in more detail in Chapter 5, Discussion. In conclusion, the observed fit lines show a consistent, albeit weak, linear pattern in the data, supporting the linearity assumption even though the correlations between these variables are not strong.

4.5 Pearson Correlation Analysis

Following the removal of outliers from the Anti-Social Online Behaviour (AOB) scale, Pearson’s Correlation analyses (Table 11) were conducted to assess the correlation or association between Workplace Stress (WS), Displaced Anger (DA), and AOB. The data indicated no significant correlations among the scales.

In particular, there was no significant association between WS and DA, as indicated by the weak correlation (r =.09) and p-value of .27. A p-value of less than .05 is generally regarded

as significant in statistical theory (Field, 2013). The observed connection in this instance is probably the result of chance rather than a real underlying relationship because the p-value of .27 is significantly higher. Similarly, the weak association between WS and AOB (r =.08, p =.36) suggests that there was no significant relationship between Workplace Stress and Anti-social Online Behaviour. Once more, the link is not strong enough to imply a statistically significant connection between these variables, as the p-value is higher than the threshold significance (.05). Lastly, DA and AOB did not substantially correlate (r = -0.01, p =.94), suggesting that AOB was not significantly predicted by DA - contrary to Hypothesis 2. The results show that any apparent association between these dimensions is merely coincidental, and the near-zero correlation, with a p-value as high as .94, shows no meaningful relationship at all.

Table 11: Pearson's Correlations

	WS_Sum	**DA_Sum**	**AOB_Sum**
WS_Sum	1.00	0.09	0.08
DA_Sum		1.00	-0.01
AOB_Sum			1.00
*p<0.05			
Note: WS Sum = Work-Related Stress, DA Sum = Displaced Anger, and AOB Sum = Anti-Social Online Behaviour			

These results imply that there is no substantial correlation between Work-related Stress, Displaced Anger, and Antisocial Online Behaviour in the current group. Theoretically, this lack of significance could mean that these constructs function independently in this setting or that the correlations are influenced by other variables not examined in this study. Future research may benefit from investigating potential moderating or mediating variables that might clarify the connections between these parameters. Personality qualities, coping strategies, and environmental factors are examples of variables that may combine with stress or anger to influence actions like AOB. (A discussion of these issues will be elaborated upon in the following Chapter).

4.5.1 Separate Totals

Three separate subscales make up the Work-Related Stress (WS) scale utilised in this study: the Interpersonal Conflict at Work Scale (ICAWS), the Organisational Constraints Scale

(OCS), and the Quantitative Workload Inventory (QWI). Together, these measures assess a variety of aspects of stress at work, such as interpersonal disputes, organisational obstacles, and perceived workload. In order to gauge the degree to which these work-related pressures made participants feel angry or upset, a single general question was also included. These many kinds of stress may function differently in connection to Displaced Anger and Anti-social Online Behaviour because the WS scale aggregates a variety of workplace stressors. Given that various aspects of stress may have distinct effects on emotional and behavioural responses, this could help to explain why the overall correlations were not significant.

The lack of significant associations may, in theory, suggest that these constructs - Work-related Stress, Displaced Anger, and Antisocial Online Behaviour - function separately. On the other hand, it can imply that certain unquantifiable elements or particular aspects of workplace stress might be affecting the connections. The relationships were re-run independently for the ICAWS, OCS, QWI, and the extra anger question to investigate this possibility (Table 12). To get more understanding of these dynamics, it was intended to ascertain whether particular WS scale items would show more robust associations with displaced anger or antisocial online conduct.

4.5.2 Pearson's Correlation with Separate Totals

The various Work-Related Stress measures (ICAWS_Sum, OCS_Sum, QWI_Sum, Overall Anger - the one item that was added to the WS scale to assess the participants feelings of anger), Displaced Anger (DA_Sum), and Anti-Social Online Behaviour (AOB_Sum), were all analysed using Pearson's Correlational analysis (Table 12). Interpersonal Conflict at Work (ICAWS_Sum) and Organisational Constraints (OCS_Sum) showed a strong positive connection ($r = .66$, $p < .001$), suggesting that higher interpersonal conflict stress levels are linked to more organisational restrictions. Additionally, ICAWS_Sum showed a moderately positive connection with both Overall Anger ($r = .38$, $p < .001$) and QWI_Sum (Quantitative Workload Inventory) ($r = .37$, $p < .001$), indicating that interpersonal conflict stress plays a major role in overall sentiments of anger. Interpersonal Conflict Stress did not correlate with Displaced Anger, nevertheless, since there were no significant associations between ICAWS_Sum and DA_Sum ($r = .07$, $p = .393$) or AOB_Sum ($r = .02$, $p = .804$).

Table 12: Pearson Correlations with Separate Totals

	ICAWS_Sum	OCS_Sum	QWI_Sum	Overall	DA_Sum	AOB_Sum
ICAWS_Sum	1.00	0.66**	0.37**	0.38**	0.07	0.02
OCS_Sum		1.00	0.56**	0.49**	0.07	0.10
QWI_Sum			1.00	0.42**	0.10	0.01
Overall				1.00	0.12	0.09
DA_Sum					1.00	-0.01
AOB_Sum						1.00
*p<0.05						
**p<0.01						
Note: ICAWS = Interpersonal Conflict at Work; OCS = Organisational Constraints Stress; QWI = Quantitative Workload Inventory; Overall = Overall Anger, DA = Displaced Anger; AOB = Anti-Social Online Behaviour.						

Organisational stress is closely associated with workplace difficulties and overall anger, as evidenced by the significant correlation between OCS_Sum and QWI_Sum ($r = .56$, $p < .001$) and the moderate correlation between OCS_Sum and Overall Anger ($r = .49$, $p < .001$). Like ICAWS_Sum, OCS_Sum did not significantly correlate with either AOB_Sum ($r = .10$, $p = .224$) or DA_Sum ($r = .07$, $p = .435$). Although it did not substantially correlate with DA_Sum ($r = .10$, $p = .235$) or AOB_Sum ($r = .01$, $p = .874$), QWI_Sum showed a moderately positive association with Overall Anger ($r = .42$, $p < .001$), indicating that workload stress considerably adds to overall anger levels.

Overall Anger was not associated with Displaced Anger or Anti-Social Online Behaviour, as evidenced by the lack of a significant correlation between Overall Anger and either DA_Sum ($r = .12$, $p = .158$) or AOB_Sum ($r = .09$, $p = .262$). Furthermore, there was no discernible association between displaced anger and any of the stress measures or AOB, as indicated by the weak and non-significant correlations that DA_Sum displayed with all variables, including AOB_Sum ($r = -.01$, $p = .938$). All other variables showed a weak and non-significant correlation with AOB_Sum.

4.5.2.1 Summary

In conclusion, Displaced Anger and AOB are not significantly correlated with the different workplace stress measures in the current sample, even though they are highly related to one another and contribute to Overall Anger. This implies that in this situation, workplace stress does not predict anti-social online behaviours or displaced anger. These results, however, may suggest that the relationship between workplace stress and anti-social online behaviour is influenced by additional, more complex elements or mechanisms, such as emotional regulation.

4.5.3 Including Positive Items

Correlations were re-run to see if adding and reversing the score for the positive items would change the findings (Table 13). The Anti-Social Online Behaviour (AOB) scale used in this study measured both positive (where lower scores indicated higher positive behaviour) and negative behaviours (where higher scores denoted more negative behaviour). The positive items were reverse scored to ensure consistency in the scoring direction so that higher scores on all items represented more negative behaviours. In addition, when compared to variables like Workplace Stress (WS) and Displaced Anger (DA), low scores on positive behaviour items (indicating higher amounts of positive behaviour) could make interpretation more difficult. This is why reverse scoring was used. Higher scores consistently indicated more negative behaviours across both positive and negative items due to reverse scoring, which simplified the understanding of the correlations.

The reverse-scored positive behaviour items (AOBREV_SUM) and the negative behaviour items (AOBNEG_SUM) were predicted to show a significant negative correlation following reverse-scoring, reflecting the opposite nature of these behaviours (i.e., higher negative behaviours should correspond with lower positive behaviours). Furthermore, the researcher wanted to see if reverse scoring may reveal any hidden patterns in the data, even though it was anticipated that the correlations between the behavioural measures and the stress-related variables (WS_Sum, DA_Sum) would continue to be weak or non-significant.

4.5.4 Pearson's Correlation with Positive Items

Higher levels of negative behaviour are linked to lower levels of positive behaviour following reverse scoring, as demonstrated by the significant and negative association between AOBNEG_SUM (negative items) and AOBREVSUM (reverse-scored positive items) ($r = -0.21$, $p = .013$) (Table 13). In addition, there were weak and non-significant associations

between DA_Sum (Displaced Anger) and AOBREVSUM (r = -0.03, p =.708) and WS_Sum (Workplace Stress) and AOBREVSUM (r = -0.01, p =.957). Similarly, there was no significant correlation between WS_Sum and AOBNEG_SUM (r =.08, p =.358).

Table 13: Correlations with Reversed Positive Items

	WS_Sum	**DA_Sum**	**AOBNEG_SUM**	**AOBREVSUM**
WS_Sum	1.00	0.09	0.08	-0.01
DA_Sum		1.00	-0.01	-0.03
AOBNEG_SUM			1.00	-0.21*
AOBREVSUM				1.00
*p<0.05				
Note: WS Sum = Work-Related Stress, DA Sum = Displaced Anger, AOBNEG Sum = Negative items of the Anti-Social Online Behaviour, and AOBREVSUM = Positive items (reversed) of the AOB Scale.				

These results support the expectations that the variables associated with stress would not significantly affect the behavioural measures. The results validated the inverse link between positive (that is, more prosocial) and negative (that is, more and-social) behaviours, and the reverse scoring offered uniformity across the scales. Displaced anger and workplace stress, however, did not correlate with behavioural consequences.

4.6 Assumptions of Mediation Regression Analysis

Assessing whether the fundamental assumptions of mediation are met is a prerequisite for moving further with the mediation analysis (Field, 2013). The validity of the analysis and the interpretation of its findings are guaranteed by these presumptions. Linearity, the first assumption, had already been measured. The remaining assumptions, such as homoscedasticity, multicollinearity, the existence of outliers, and the normality of residuals, were then evaluated using multiple regression analysis (Field, 2013; Hayes, 2018).

4.6.1 Assumption of Linearity

To use parametric tests like regression, which are essential to mediation models, one of the fundamental presumptions is linearity. According to Field (2013) and Hayes (2018), linearity guarantees that there is a linear pattern in the relationships between the predictor, mediator, and outcome variables. As previously mentioned in Section 4.4.3, scatterplots with regression lines and associated R^2 values were used to evaluate the assumption of linearity between the

three main variables (work-related stress, displaced anger, and anti-social online behaviour). The scatterplots' constant linear trends show that the assumption of linearity has been met, despite the weak correlations between these variables (refer to Appendix P). Given that the linearity assumption guarantees the proper application of parametric techniques like regression, these findings offer the essential basis for carrying out the mediation study (Field, 2013; Hayes, 2018).

4.6.2 Assumption of Homoscedasticity

To evaluate homoscedasticity, the scatterplot of regression-standardised residuals versus regression-standardised predicted values was analysed. According to Field (2013) and Hayes (2018), residuals should ideally show a random pattern with no discernible trend in their distribution among projected values. On the other hand, the scatterplot shows a faint fan-like pattern, with the spread of residuals increasing as anticipated values rise and the residuals at lower projected values being more tightly grouped. This suggests that the homoscedasticity assumption has been mildly violated. Since the deviations are relatively small, the pattern appears to be mild even though it is present, indicating that the assumption of homoscedasticity is reasonably met (Field, 2013; Hayes, 2018).

4.6.3 Assumption of Multicollinearity

High levels of correlation between independent variables in a regression model are known as multicollinearity, and they can have an impact on the model's overall interpretability as well as the accuracy of the estimated coefficients (Field, 2013; Hayes, 2018). Both the Tolerance and Variance Inflation Factor (VIF) values are analysed to evaluate multicollinearity. The percentage of variance in a particular independent variable that cannot be accounted for by other variables in the model is shown by the tolerance values. A possible multicollinearity problem is indicated by values less than 0.1 (Field, 2013; Hayes, 2018). VIF values quantify the extent to which collinearity has inflated a coefficient's variance; values higher than 10 signify a serious issue (Field, 2013; Hayes, 2018).

Work-Related Stress (WS_Sum) and Displaced Anger (DA_Sum), two independent variables in this regression model, show low VIF values of 1.009 and high tolerance values of 0.992 (Table 14). Since the VIF values fall substantially below the 10 criterion, these values are comfortably within acceptable bounds. As a result, this model shows no signs of multicollinearity. This implies that there isn’t a high correlation between WS_Sum and

DA_Sum, enabling confidence in the accuracy of the coefficient estimations and the interpretability of the regression analysis.

Table 14: Multiple Regression - Multicollinearity

Model		Beta	Std. Beta	t	Sig.	Collinearity Statistics	
						Tolerance	VIF
1	**(Constant)**	9,900		18,244	<,001		
	WS_Sum	,008	,078	,929	,354	,992	1,009
	DA_Sum	-,003	-,014	-,163	,870	,992	1,009

a. Dependent Variable: AOB_Sum

4.6.4 Assumption of Outliers

The sample size was first decreased from 150 to 145 by eliminating five significant outliers. This was essential as the removal of these outliers had significantly impacted normality. After that, several diagnostic tests were carried out to check for other outliers and ensure the robustness of the multiple regression analysis. To find significant data points that might have an outsized impact on the regression model, Cook's Distance was used. Cook's D values should be less than 1 or less than 4/n, where n is the sample size, according to a popular rule (Field, 2013). The threshold, given a sample size of 145, was determined to be 4/145 = 0.028. This criterion was surpassed by eight participants, suggesting that they could have an outsized impact on the model.

To determine how much an observation's independent variable values varied from the others, leverage values were computed. The threshold for this model with two predictors (WS_Sum and DA_Sum) was 0.062, determined using the formula $(K + 1)/n \times 3$, where K is the number of predictors. Four individuals were identified as possible outliers after surpassing this cut-off. Additionally, multivariate outliers were found using the Mahalanobis Distance. Values above 13.82 were regarded as possible outliers when there were two predictors (Field, 2013). This measure led to the flagging of two participants.

Although these 14 instances were initially eliminated as a result of these diagnostic procedures, it was ultimately determined to keep the outliers. This is because eliminating these outliers considerably reduced the AOB scale's dependability to 0.3. The study's focus on Antisocial Online Behaviour (AOB) serves as the rationale for this choice. Outliers could theoretically

represent actual antisocial activity or departures from the social desirability bias. Eliminating these instances could lead to the omission of significant, valid data points that are pertinent to the topic under study. Hence, to maintain the integrity of the AOB data, these cases were kept in the final analysis even though statistical methods had designated them as outliers. Although this choice is acknowledged as a drawback, it was made to guarantee that the model captures the entire spectrum of behaviours seen in the data. The researcher recognises that while certain reactions may seem excessive, they are theoretically consistent with the nature of antisocial activity on the internet, which is why the researcher has kept these outliers.

4.6.5 Assumption of Normality of Residuals

The normality assumption in the regression model was evaluated by looking at the histogram of the regression standardised residuals (refer to Appendix P). A bell-shaped curve is ideal for residuals, with the majority of values grouped around the mean (close to 0) and tapering off as they approach the extremes (Field, 2013; Hayes, 2018). With residuals concentrating close to the centre and dropping off as they approach the extremes, the histogram in this study shows a typical bell-shaped curve. With more residuals grouped around -1 and fewer positive residuals going past 2, there is a little lean to the right, though. However, the overall bell-shaped curve indicates that the premise of normality is fairly met, despite the skew suggesting a slight deviance from complete normality. In social scientific research, little departures from perfect normalcy are common and generally regarded as acceptable, provided that the skew is not excessive (Field, 2013; Hayes, 2018). However, as this bias could have slight effects on the accuracy and precision of the model, it should be taken into consideration while analysing the findings.

4.7 Mediation Regression Analysis

The indirect relationship between workplace stress (WS_Sum) and Antisocial Online Behaviour (AOB_Sum) through Displaced Anger (DA_Sum) was investigated using a mediation analysis utilising PROCESS (Model 4; Hayes, 2022), adjusting for gender. According to the findings, displaced anger was not significantly predicted by Work-related Stress (B = 0.048, SE = 0.042, t(142) = 1.14, p = .255). Likewise, Anti-social Online Behaviour was not significantly predicted by Displaced Aner (B = -0.002, SE = 0.018, t(141) = -0.13, p =.900). Workplace stress had a non-significant indirect effect on Antisocial Online Behaviour through Displaced Anger (B = -0.0001, BootSE = 0.0011, 95% CI [-0.0025, 0.0021]). Consequently, no mediation was discovered.

Table 15: Mediation Regression Process 4

Variable	B	SE	t	p	95% CI
Outcome: Displaced Anger (DA_Sum)					
Workplace Stress (WS_Sum)	0.048	0.042	1.14	.255	[-0.034, 0.1289]
Gender (Male = 1, Female = 0)	-2.851	1.513	-1.88	.062	[-5,841, 0.139]
Constant	22.686	2.735	8.30	< .001	[17.280, 28.092]
R^2 = .033, F(2, 142) = 2.40, p = .094					
Outcome: Antisocial Online Behavior (AOB_Sum)					
Workplace Stress (WS_Sum)	0.008	0.009	0.92	.360	[-0.009, 0.026]
Displaced Anger (DA_Sum)	-0.002	0.018	-0.13	.900	[-0.038, 0.034]
Gender (Male = 1, Female = 0)	0.075	0.332	0.23	.822	[-0.581, 0.730]
Constant	9.793	0.722	13.57	< .001	[8.366, 11.220]
R^2 = .006, F(3, 141) = 0.31, p = .822					
Total Effect: Workplace Stress on Antisocial Online Behavior					
Workplace Stress (WS_Sum)	0.008	0.009	0.91	.362	[-0.010, 0.026]
Direct Effect: Workplace Stress on Antisocial Online Behavior					
Workplace Stress (WS_Sum)	0.008	0.009	0.92	.360	[-0.009, 0.026]
Indirect Effect (via Displaced Anger)					
Effect	-0.0001	0.0011			[-0.0025, 0.0021]

4.7.1 Direct Effects

There was no statistically significant direct relationship between WS_Sum and DA_Sum (mediator) (B = 0.048, SE = 0.042, t(142) = 1.14, p = .255, 95% CI [-0.034, 0.1289]). This suggests that, after adjusting for gender, work-related stress does not significantly predict displaced rage, which is contrary to the study's hypothesis 1.

Hypothesis 3 was contradicted by the non-significant direct effect of WS_Sum on AOB_Sum (outcome variable), with B = 0.008, SE = 0.009, t(141) = 0.92, p = .360, 95% CI [-0.009,

0.026]. This finding implies that antisocial online behaviour is not directly predicted by stress at work.

4.7.2 Indirect Effects

To examine the indirect influence of WS_Sum on AOB_Sum through DA_Sum, 5,000 samples were bootstrapped. Since bootstrapping is a reliable non-parametric technique that does not depend on the assumption of normality for the indirect effect's sampling distribution, it was used to estimate the indirect effects (Hayes, 2018; Valeri & VanderWeele, 2013). Even with complex or non-normal data distributions, this approach offers more confidence in the conclusions and is especially helpful for determining the relevance of indirect effects (Hayes, 2018; Valeri & VanderWeele, 2013). As determined by B = -0.0001, BootSE = 0.0011, and 95% BootCI [-0.0025, 0.0021], the indirect effect was not significant. This implies that the association between work-related stress and antisocial online activity is not mediated by displaced rage, which runs counter to Hypothesis 4.

4.7.3 Total Effects

AOB_Sum was not statistically significantly affected by WS_Sum overall (B = 0.008, SE = 0.009, t (142) = 0.91, p = .362, 95% CI [-0.010, 0.026]). This finding implies that stress at work and antisocial online activity are not generally significantly correlated. The results show that, in contrast to Hypothesis 3, work-related stress does not seem to be a significant factor in this sample's antisocial online activities. These findings might suggest the existence of additional, unstudied factors, such as coping mechanisms or individual characteristics, that could moderate or modify this link.

4.7.4 Gender as a Covariate

To account for its possible impact on the association between work-related stress, displaced anger, and antisocial online behaviour, gender was added as a covariate. According to the results, Gender may be involved in Displaced Anger levels, as evidenced by the fact that gender was a near-significant predictor of DA_Sum, B = -2.851, SE = 1.513, t (142) = -1.88, p = .062, 95% CI [-5.841, 0.139]. However, AOB_Sum, B = 0.075, SE = 0.332, t (141) = 0.23, p = .822, 95% CI [-0.581, 0.730], was not significantly predicted by gender.

4.7.4.1 Gender and Displaced Anger

The findings showed a marginal relationship between gender and DA_Sum (B = -2.851, SE = 1.513, t (142) = -1.88, p = .062). This implies that, generally speaking, women might feel less

displaced anger than men. This result is consistent with psychological studies that indicate men may be more likely than women to express their anger externally or to be prone to anger displacement.

4.7.4.2 Gender and AOB

However, AOB_Sum did not significantly depend on gender (B = 0.075, SE = 0.332, t (141) = 0.23, p = .822), contrary to Hypothesis 5. This suggests that Antisocial Online Behaviour is not significantly influenced by gender, i.e., men and women react to work-related stress in similar ways by engaging in antisocial online behaviours. AOB may be influenced by variables other than gender, such as personality traits or social situations, although the current model did not examine these possibilities.

4.7.4.3 Interpretation

The relationship between work-related stress (WS_Sum) and Antisocial Online Behaviour (AOB_Sum) is not mediated by Displaced Anger (DA_Sum), according to the mediation analysis. Stress at work did not significantly affect Antisocial Online Behaviour either directly or indirectly through Displaced Anger. Although Displaced Anger was slightly impacted by gender, these variations did not result in appreciable variations in Antisocial Online Behaviour (AOB).

4.7.4.4 Summary of Gender as a Covariate

In conclusion, the analysis indicates that gender may play a role in predicting Displaced Anger, with men potentially exhibiting higher levels of Displaced Anger than women. However, gender does not significantly influence Antisocial Online Behaviour (AOB). These results imply that whereas gender differences might influence the experience or expression of anger, they are less significant in predicting Antisocial Behaviour on the internet. These findings highlight the complexity of emotional reactions, such as anger, where gender norms may influence how emotions are expressed but do not always result in variations in Antisocial Online Behaviour (AOB).

4.8 Summary of Results Chapter

The purpose of this study was to examine the connections among work-related stress, displaced anger and antisocial online behaviour (AOB), as well as the function of gender as a covariate. To answer these study questions and hypotheses, several statistical analyses were carried out, such as correlation tests, regression analyses, and mediation analyses. Weak correlations

between the variables under investigation were found by the preliminary correlation analysis. In particular, there was a slight but positive association between Work-related Stress, Displaced Anger, and Antisocial Online Behaviour. Despite indicating a possible association between these factors, these correlations fell short of statistical significance, giving early warning signs that the direct and mediated effects in further analyses might not be significant.

Regression models were used to investigate the direct impacts of Work-related Stress on Displaced Anger and Antisocial Online Behaviour (AOB) after the correlation analysis. Work-related Stress did not substantially predict Displaced Anger, in contrast to Hypothesis 1 (B = 0.048, p = .255). Furthermore, Hypothesis 3 was refuted by the fact that work-related stress did not directly predict Antisocial Online Behaviour (B = 0.008, p = .362). These findings showed that in this population, work-related stress alone is not a reliable indicator of either Displaced Anger or Antisocial Online Behaviour (AOB).

Hayes' (2022) PROCESS macro (Model 4) was used for the mediation study, which examined whether Displaced Anger mediates the link between Work-related Stress and Antisocial Online Behaviour (Hypothesis 4). The indirect impact did not mediate this association, as seen by the non-significant results (B = -0.0001, 95% BootCI [-0.0025, 0.0021]). The conclusion that there are weak or non-existent correlations between Work Stress, Displaced Anger, and AOB in the available data is further supported by this lack of mediation.

Gender appeared in the study as a marginally significant covariate despite these non-significant direct and indirect effects. In particular, men showed somewhat higher levels of displaced anger than women, and gender approached significance in predicting displaced anger (B = -2.851, p =.062). Gender did not, however, substantially predict antisocial online activity (B = 0.075, p =.822), suggesting that antisocial online behaviour is identical for men and women independent of their levels of work-related stress or misdirected rage.

Diagnostic examinations for multicollinearity, homoscedasticity, and residual normality verified that these assumptions were largely satisfied in terms of assumption testing, notwithstanding a few small homoscedasticity and normality infractions. Although some significant examples were found through outlier analysis using Cook's Distance, leverage values, and Mahalanobis Distance, it was finally determined to keep these cases because of their connection to Antisocial Online Behaviour and potential deviation because of social desirability bias.

In conclusion, the findings imply that Antisocial Online Behaviour is not significantly predicted by either Work-related Stress or Displaced Anger. Gender variations in Displaced Anger were found, indicating the possibility that gender influences emotional reactions to stress, even if the expected mediation effect of misplaced anger was not supported. These variations, however, did not result in behavioural variations in AOB, suggesting that Antisocial Behaviour on the internet may be influenced by additional, unstudied factors. Ultimately, the study's findings shed light on the connections among Work-related Stress, Displaced Anger and Antisocial Online Behaviour (AOB). Even if the factors' correlations and mediation were not statistically significant, these results nevertheless advance our knowledge of the intricate processes at work. Important considerations concerning the possible causes of these associations, the function of sample features, and the constraints of the employed measures, particularly the AOB measure, are brought up by this lack of significance. The discussion that follows will examine potential causes for the non-significant connections, interpret these findings in light of the body of existing literature, and offer ideas for future study areas.

Chapter 5: Discussion

This chapter examines the results in light of the primary research objectives of the study, which aimed to investigate the intricate relationships between Work-related Stress (WS), Displaced Anger (DA), and Antisocial Online Behaviour (AOB). The study also sought to determine whether DA mediates the relationship between WS and AOB and whether gender plays a role in these dynamics. Based on these research objectives, the hypothesis established predicted that displaced anger would be correlated with work-related stress and would then mediate its relationship to antisocial online behaviour. The strength of these partnerships was also thought to be influenced by gender. However, contrary to the initial expectations, the findings showed weak and non-significant connections between WS, DA, and AOB. The proposed function of DA as a mediator was not supported by mediation analysis, challenging theories like the Frustration-Aggression Displacement Model (FADM), which holds that stress causes displaced anger that may manifest into antisocial behaviour (Breuer & Elson, 2017). In light of these results, the following discussion will interpret these results by linking them to the broader literature on stress and behavioural responses, considering potential explanations for these unexpected findings and examining their theoretical and practical implications. Lastly, the section will discuss the limitations of the present study and suggest recommendations for future research.

5.1 Summary of Key Findings

The study's first hypothesis stated that individuals' experience of Work Stress (WS) is associated with their experiences of Displaced Anger (DA). However, the findings illustrated no significant correlation between the two. This result challenges the Frustration-Aggression Displacement Model (FADM), which suggests that stress and anger are directly related (Breuer & Elson, 2017). The absence of a clear correlation in this case, however, can suggest that other elements such as techniques for controlling emotions or outside coping mechanisms - are reducing displaced anger in reaction to work-related stress. These possible explanations will be discussed in detail in this discussion section.

Similarly, the study's second hypothesis stated that people's participation in Antisocial Online Behaviour (AOB) is linked to their experience of Displaced Anger (DA). However, the findings showed no significant correlation between AOB and Displaced Anger (DA). The third hypothesis, that is, individuals' experience of WS should be indirectly associated with their engagement in AOB, was also unsupported.

The fourth hypothesis of the study states that the impact of work-related stress on AOB will be mediated by Displaced Anger (DA). The results indicated that Displaced Anger did not play a significant role in mediating this relationship, challenging the notion that work-stress-induced anger translates into Antisocial Online Behaviour (AOB).

The final hypothesis of the study predicted that when it comes to their experiences of Work-related Stress and Displaced Anger, men are more likely than women to engage in AOB. Contrary to initial expectations, there was no discernible difference between men and women regarding AOB participation. However, interestingly the study's results demonstrated that men displayed greater levels of displaced anger than women, indicating that gender had a marginal impact on displaced anger.

5.2 Interpretation and Explanation of the Results

This discussion evaluates the study's findings by looking at each hypothesis, relating the results to relevant theories, and contrasting them with data from previous studies. The non-significant results of this study encourage a more thorough investigation of plausible causes. Possible measurement problems, the impact of sample characteristics, confounding variables, theoretical frameworks, and study design restrictions will all be covered in detail below. Research findings from others in the field will also be discussed, providing methodological, theoretical, and contextual insights that may help explain the lack of significant results observed in the present study (Allen & Anderson, 2017; Fida et al., 2014; Kowalski et al., 2018; Kweon et al., 2008; Lindebaum & Geddes, 2016; Malik & Pichler, 2022; Salguero et al., 2020).

5.2.1 Measurement-Related Aspects

Before delving into other literature that may provide insights into the possible reasons for the lack of significant findings in the present study, it is crucial to address measurement-related aspects of the Antisocial Online Behaviour (AOB) instrument. As discussed in the results section, some issues arose concerning the reliability of the instrument used to measure AOB. These limitations are outlined in further detail below, concerning how they may have affected the findings of this study.

5.2.1.1 AOB Reliability

The sensitivity and reliability of the scales employed, especially the AOB scale, may be one of the main causes of the non-significant results (Field, 2013). Following the removal of outliers, the AOB scale's Cronbach's alpha fell to 0.543, below the generally accepted threshold of 0.70

for internal consistency (Field, 2013). While some studies in the social sciences accept a lower threshold of 0.60, this value was still far below the minimum threshold (Kline, 1999, as cited in Field, 2013). Nunnally (1978, as cited in Field, 2013) suggests that alphas as low as 0.50 in early-stage research may suffice. However, it is critical to interpret the alpha value within the context of the specific research question and the scale's intended purpose (Pedhazur & Schmelkin, 1991, as cited in Field, 2013).

In this case, the low alpha suggests that the AOB scale may not have been sufficiently reliable to capture the variety of Antisocial Online Behaviours (AOB) participants may have engaged in. This issue may have resulted in measurement errors, potentially diluting the strength and significance of the observed associations. Additionally, as Cortina (1993 as cited in Field, 2013) emphasises, that Cronbach's alpha is influenced by the number of items on a scale. The AOB scale's low alpha could reflect either a lack of internal consistency or the presence of multiple underlying factors that were not effectively captured by the scale leading to measurement error.

5.2.1.2 Measurement Error and its Implications

Such a discrepancy between the underlying reality of a construct and the construct assessed is known as a measurement error (Brakenhoff et al., 2018; Hibbert, 2007). Such a discrepancy could result from several factors, such as differences in the respondent's interpretation of the items, differences in the administration of the instruments, or flaws in the instrument itself (Brakenhoff et al., 2018). In the case of the AOB scale, several design issues - such as neutral/general wording, inconsistent response formats between items, and overlapping constructs - could have contributed to the discrepancy. Measurement errors are generally classified into systematic and random errors (Brakenhoff et al., 2018; Hibbert, 2007). Systematic error refers to persistent, predictable biases that skew results in a particular direction, and random error, arises from unpredictable variations affecting measurements inconsistently (Brakenhoff et al., 2018; Hibbert, 2007). For instance, a systematic error could result from a poorly worded question that systematically leads participants to misreport their behaviours. In contrast, a random error may stem from external distractions, such as participant mood, or inconsistency in attention span whilst filling in the survey (Brakenhoff et al., 2018; Hibbert, 2007).

Both the above-mentioned types of errors undermine the reliability and validity of the data collected (Brakenhoff et al., 2018; Field, 2013). Reliability is compromised when measurement

error introduces inconsistencies in responses across items, as seen with the low Cronbach's alpha (0.543) for the AOB scale (Field, 2013). This value indicates poor internal consistency, suggesting that the scale's items did not reliably measure a single, cohesive construct (Field, 2013). Random errors, such as participants misinterpreting items or inconsistently responding to varying formats, may have exacerbated this issue.

Similarly, validity is compromised when the instrument fails to measure the intended construct accurately (Brakenhoff et al., 2018; Field, 2013). The AOB scale's inclusion of both antisocial and prosocial items (e.g., When I am online, I try to help end arguments or dramas) may have diluted its focus, creating confusion about the primary construct being assessed. Additionally, systematic errors, such as items that inadequately represent the diversity of Antisocial Online Behaviours (AOB) - for example, failing to distinguish between the different types or intensities of behaviours, could have an impact on the findings leading to bias and invalid conclusions (Brakenhoff et al., 2018). For instance, if the scale did not comprehensively capture the range of antisocial behaviours, systematic error may have contributed to the non-significant results, as the scale may not have reflected the true construct (Brakenhoff et al., 2018).

The implications of such measurement errors are profound (Brakenhoff et al., 2018; Field, 2013; Hibbert, 2007). The observed correlations between AOB and characteristics such as DA and Work-related stress were probably weaker due to random error (Hibbert, 2007) . Socially acceptable answers to items such as "I try to make sure that the things I say online will not be something I regret", or overlapping items, are examples of systematic errors that might have further hidden or distorted these relationships (Brakenhoff et al., 2018). The precision or accuracy of the findings reached is jeopardised by this, as it lessens the possibility of finding significant correlations even when they do exist (Brakenhoff et al., 2018; Field, 2013; Hibbert, 2007).

While every effort was made to examine previous measures and consultation with experts to develop items suitable for the instrument in this study, it is evident that despite all efforts made, the items were not as reliable and internally consistent as the researcher had hoped. Thus, the AOB scale must be improved to lessen these problems in future research. Reliability and validity could be improved by standardising response forms, making items clearer, and perhaps dividing prosocial and antisocial behaviours into different measures (Brakenhoff et al., 2018; Field, 2013; Hibbert, 2007). In addition, before collecting large amounts of data, a small sample

size could be used to test the scale to find potential causes of bias, redundancy, or ambiguity. Time constraints in the present study prevented the conducting of a pilot study and the researcher is well aware of this limitation. Addressing these challenges is essential to minimise measurement error, thereby improving the robustness and generalisability of future findings.

5.2.1.3 Range of AOB

In addition, cyberbullying and online harassment are examples of more extreme types of antisocial online behaviour, whereas sarcastic remarks and social isolation are examples of milder forms of online misconduct (Fisher, 2013; Machackova et al., 2015). Given the scale's reliability issues, it is possible that the items used did not comprehensively capture these various behaviours (Field, 2013). Furthermore, it's possible that some behaviours, such as passive-aggressive online activities, were not adequately represented, which resulted in a more limited operationalisation of AOB than intended. For example. While the scale included items such as "posting negative comments" or "sharing disrespectful content", these items may have been too neutral or general to fully differentiate between mild behaviours, such as sarcastic remarks, and more severe actions, like targeted online harassment.

More specifically, actions such as sending repeated derogatory messages, intentionally creating or participating in group chats to mock someone or sharing private information online to humiliate an individual are instances of extreme behaviours that may have been overlooked (Fisher, 2013; Machackova et al., 2015; Agboola, 2023). However, it is possible that less severe and nonetheless important actions, like quietly removing someone from a group chat or making vague, passive-aggressive remarks meant to discredit someone else, were not sufficiently recorded. The scale's ability to measure the entire range of AOB, from subtle and indirect behaviours to overt and detrimental actions, might have been increased by adding such nuanced items. It is important to note that the present researcher was concerned that including too many items and covering too wide a range of behaviours would have prevented respondents from completing the survey and an attempt was made to limit item numbers while still tapping the construct, but the researcher may have, by weighing up these considerations, not fully assessed the construct. Again, this is noted as a limitation.

Compared to other scales, such as the "Cyberbullying Offending Scale (COS)" by Hinduja and Patchin (2024), which is often utilised by many researchers to measure AOB explicitly categorises behaviours based on their intensity and type, the AOB scale may have lacked sufficient multidimensionality. While the neutral tone and phrasing utilised in the scale were

intended to reduce social desirability bias or to avoid using words that could have impacted the well-being of the participant, this could have resulted in underreporting or an incomplete representation of participants' Antisocial Online Behaviour (AOB). In contrast, the "Cyberbullying Offending Scale (COS)" offers a more precise example of a scale that measures the kind and severity of AOB (Hinduja & Patchin, 2024). Nine items of this scale specifically address a wide range of behaviours, including making unpleasant web pages, spreading rumours, publishing hurtful comments, and trying to damage another individual's reputation (Hinduja & Patchin, 2024). These items are grouped according to certain activities allowing the scale to assess the type and intensity of AOB behaviours (Hinduja & Patchin, 2024).

In comparison, it is possible that the AOB scale employed in this study did not sufficiently differentiate between these dimensions. For instance, although the AOB scale had elements like "sharing disrespectful content" and "posting negative comments", it could be argued that these items were too general and neutral to distinguish between less serious behaviours like posting sarcastic remarks and more serious ones like sharing harmful videos or threatening someone online. This lack of specificity might have made it more difficult for the scale to identify subtle behavioural patterns and added to its dependability problems.

Such multidimensional scales that distinguish between distinct forms of behaviour (such as covert, passive-aggressive, or aggressive) and intensities (such as subtle sarcasm vs overt threats) should be prioritised in future research. In addition, addressing the present constraints, this strategy would provide a more thorough comprehension of how Displaced Anger appears in virtual environments, possibly exposing more nuanced aspects of antisocial behaviour.

5.2.1.4 Displaced Anger Scale

Similarly, measurement issues with displaced anger may also be the cause of the non-significant correlation between displaced anger (DA) and work stress (WS), as well as between DA and AOB. Other emotional states like direct anger, irritability, or worry may be more directly linked to occupational stress and more predictive of AOB (Kundaragi & Kadakol, 2015; Miller et al., 2003; Ohly & Schmitt, 2015). The lack of a strong mediation effect may be due to the focus on displaced anger alone, which may have overlooked these other emotional responses (Kundaragi & Kadakol, 2015; Ohly & Schmitt, 2015; Vranjes et al., 2020). Instead of displaced anger, frustration - an emotional response to unfulfilled expectations or hindered goals at work - may be a more significant mediator of AOB.

While DA specifically refers to anger redirected from a stressor (such as work) to a safer target, frustration - an emotional response to unfulfilled expectations or hindered goals - may play a more prominent role in these relationships (Vranjes et al., 2020). Frustration arises when individuals feel blocked from achieving desired outcomes or when workplace demands conflict with personal or professional goals (Vranjes et al., 2020). This emotion often involves both anger and a sense of powerlessness, which could make it particularly likely to manifest in displaced behaviours, including AOB (Breuer & Elson, 2017).

For example, an employee experiencing high work stress due to unattainable deadlines or conflicting demands may feel frustrated rather than directly angry. Frustration is often accompanied by a desire to express dissatisfaction or regain a sense of control, but the workplace environment may not permit direct confrontation (Breuer & Elson, 2017; Vranjes et al., 2020). This internal tension might lead to passive-aggressive behaviours or venting in safer, less confrontational ways, such as posting sarcastic comments or exclusionary actions online (Breuer & Elson, 2017; Vranjes et al., 2020). Unlike DA, frustration captures a broader range of emotional reactions including feelings of disappointment and helplessness, which might better explain why some individuals resort to AOB in response to work stress (Breuer & Elson, 2017).

Additionally, frustration often involves a cognitive component: evaluations of fairness, competence, or goal attainability, that could amplify its impact. For example, when employees perceive work-related stressors as unjust or feel that they lack the necessary resources to overcome challenges, their frustration may deepen (Gianakos, 2002; Vranjes et al., 2020). This heightened frustration could show a greater association with AOB and serve as a stronger mediator than DA because it encapsulates not only redirected anger but also a sense of dissatisfaction and unmet expectations, which are likely to lead to behaviours like AOB.

Given these dynamics, future research could explore frustration as an alternative mediator between WS and AOB. This would involve not only examining the emotional intensity of frustration but also its frequency and persistence in workplace contexts. Incorporating frustration into the model could provide a more comprehensive understanding of how stress-related emotions translate into antisocial behaviour online, potentially uncovering pathways that were overlooked in this study.

5.2.2 Confounding Variables

Confounding variables, or unmeasured factors that affect both the independent and dependent variables and affect the correlations under study, may be a major contributing element to the non-significant results (Field, 2013). Confounding variables can introduce bias into research because they influence the results without being controlled for, making it challenging to determine true cause-and-effect relationships (Field, 2013). The hypothesised correlations between work stress, displaced anger, and AOB may have been hampered in the current study by a multitude of confounding variables. Some key potential confounding variables are discussed below. Given the scope of this research study and the constraints of this scope, it was not possible to assess all these potential confounding variables.

5.2.2.1 Personality Traits and Alternative Emotional Responses

The current study may not have been able to fully capture the complex association between Work Stress (WS) and Antisocial Online Behaviour (AOB) because it relied on a measure of Displaced Anger (DA) only. Fida and colleagues' (2014) research, which examined emotional reactivity (especially irritability), counterproductive work behaviour (CWB), and particular job stresses, showed how individual characteristics have a big impact on stress-related behaviours. According to Fida's research, when confronted with work-related pressures, those who are very irritable are more prone to feel strong negative emotions, which can result in aggressive or deviant behaviours (Fida et al., 2014). Fida's findings, therefore, imply that individual variations in emotional characteristics greatly influence how stressors manifest as behaviours, highlighting the significance of personality in understanding the dynamics of workplace aggression (Fida et al., 2014).

One can extrapolate from this study to the present study if one accepts the possibility that individuals who have certain characteristics could display anger in different ways in response to work stressors. The present study, as discussed, found no significant correlation between work stress and anger. If the present sample was composed of individuals with lower levels of irritability or emotional reactivity, they may have been less likely to experience strong emotional reactions to work stress, resulting in a weaker relationship between these variables (Fida et al., 2014; Garfinkel et al., 2016). This discrepancy may suggest that although work-related stress is still significant, its effects may be lessened in people who are less likely to experience strong emotional reactions, like rage or anger (Fida et al., 2014; Garfinkel et al., 2016). Without controlling for individual differences, such as trait anger or neuroticism, this

study may miss subtleties in stress responses that influence AOB (Fida et al., 2014; March et al., 2020). Personality traits could also shape whether participants respond to stress by externalising anger in the form of AOB, highlighting the need to incorporate these variables to improve measurement sensitivity (Fida et al., 2014; March et al., 2020). Hence, future studies may reveal minute variations in the ways that work stress manifests into AOB by taking personality traits like irritability into account. Irritability is but one personality characteristic used as an example. There is a vast array of personality characteristics such as hardiness, sense of coherence, psychological capital and resilience to name but a few, that could affect whether work stress has a pathway to anger and thereon AOB (Mosley & Laborde, 2016; Rabenu et al., 2017; Vollrath, 2001). Given the vast array of characteristics and the limited scope of this study, the multitude of possible personality variables that could confound the relationship could not be examined. Further, a more thorough study of the emotional pathways connecting stress to online aggressiveness may also be possible by investigating different emotional reactions, such as resentment or direct anger. Incorporating direct, misdirected, and suppressed anger along with more general emotional responses like annoyance or resentment could lead to multifaceted anger scales that may provide a more accurate measure of anger.

Building on the above argument, measurement flaws that ignore the entire spectrum of personality characteristics and emotional reactions at play may be the reason why the present research did not find any significant correlations between work stress, displaced anger, and antisocial online behaviour (AOB). Fida et al.'s (2014) findings and Malik & Pichler's (2022) research highlights the necessity of considering specific stressors and a broader spectrum of emotions than displaced anger to fully comprehend how work stress might appear as AOB. Malik & Pichler (2022), for example, focused on Perceived Organisational Politics (POP) as a key stressor, demonstrating how it elicited negative emotions such as anger and fear. These emotions were then linked to antisocial behaviours, with anger driving Workplace Cyberbullying (WCB) perpetration and fear leading to face-to-face bullying victimisation. This specificity in connecting particular workplace dynamics, such as POP, to emotional responses and behavioural outcomes provided a clearer stressor-emotion-outcome link.

In contrast, the present study explored work stress in *broader terms*, encompassing interpersonal conflicts and job-related pressures, but without isolating specific organisational stressors like POP. This broader approach may have contributed to weaker associations between WS, DA, and AOB, as the links between stressors, emotional responses, and

behaviour were less direct. For instance, Malik & Pichler (2022) effectively utilised the Emotion Reaction Model (ERM) and Affective Events Theory (AET) to explain how stressors trigger specific emotions (e.g., anger or fear), which in turn predict distinct behaviours. In the present study, as previously mentioned, DA may have been too narrowly defined, potentially missing other emotional reactions like frustration, fear, or annoyance that might better explain how workplace stress translates into AOB.

Furthermore, Malik & Pichler's (2022) research is consistent with research showing that victims of in-person bullying may respond anonymously online, so reversing the roles of victim and bully (Malik & Pichler, 2022). Their methodology highlights the significance of accurate emotional assessments in research, implying that a narrow focus on displaced anger alone may mask the intricate emotional connections leading to AOB. Their divergence in scope may also explain why the measures in this study did not fully capture the hypothesised links between work stress and AOB. Future research could benefit from adopting a more targeted approach, isolating specific workplace stressors or attempting to capture a wider range of emotions connected to stress and workplace bullying to better predict and manage both in-person and online antisocial behaviours.

5.2.2.2 Coping Mechanisms and Support Systems

The weak relationships between variables in this study could also be reasonably explained by participants' coping mechanisms and support systems (Deffenbacher, 2011; Goh et al., 2010; Salguero et al., 2020). Studies suggest that adaptive coping techniques - such as mindfulness, cognitive reappraisal, and seeking social support from work and non-work sources - can help reduce stress-induced anger (Jick & Mitz, 1985; Liu et al., 2022; Rivera-Torres et al., 2013). Whilst, those who use maladaptive coping strategies, such as denial or avoidance, could feel more frustrated, which makes them more likely to engage in AOB (Deffenbacher, 2011; Salguero et al., 2020). It is possible that participants could have used adaptive coping techniques to regulate their emotions, thereby decreasing the likelihood of expressing Displaced Anger and AOB (Jick & Mitz, 1985; Liu et al., 2022; Rivera-Torres et al., 2013). In this way, coping mechanisms may serve as a buffer between stress and anger, which could account for the poor correlation between WS, DA, and AOB if such strategies were prevalent in this sample. Additionally, the presence or absence of social support systems could have influenced participants' emotional responses to stress (Marengo et al., 2021; Rivera-Torres et al., 2013). Individuals with strong social support systems can often manage stress more

effectively, reducing the need for actions such as Displaced Anger and AOB (Marengo et al., 2021; Rivera-Torres et al., 2013). Conversely, those lacking support may express their grievances online. The omission of social support measures in the current study could mean that a significant buffer against stress-induced anger has been overlooked, potentially explaining some of the statistically insignificant interactions.

Building on the discussion of support systems, it is also important to consider how an organisation's culture provides a platform or environment characterised by open communication and support structures for employees. Malik & Pichler (2022) emphasised in their study of Pakistani universities, that hierarchical structures limited direct expressions of stress and anger, which led to an increase in experiences of Displaced Anger among participants. Less hierarchical restrictions or stronger support networks within the organisation could have reduced the need for AOB as a way to cope with Displaced Anger in this context (Malik & Pichler, 2022). These factors suggest the relationship between WS and AOB can be significantly influenced by organisational structures and cultures. Cao et al.'s (2023) findings further support this, as leadership styles such as ethical and relational-oriented leadership help foster environments that reduce workplace aggression by encouraging transparency and interpersonal support. These findings suggest that the relationship between WS, displaced anger, and AOB is complex and highly dependent on the broader organisational structures and cultures that shape employee interactions and coping mechanisms. Once again, these variables were not assessed, given the scope of the study, and it is possible that they may have been prominent in playing a role in reducing the pathways between the variables under study, by having buffering effects.

5.2.2.3 Beliefs and Rumination

Salguero et al. (2020) discovered a positive correlation between angry rumination and maladaptive metacognitive beliefs. Within their study, this led to an increase in anger and displaced aggression. This association was entirely mediated by angry rumination, suggesting that aggressive behaviours, particularly indirect ones like displaced aggression, might be amplified by beliefs and ruminative cycles (Salguero et al., 2020). The focus on metacognitive beliefs in Salguero et al.'s (2020) work, which demonstrated that belief-based ruminative cycles amplify rage responses, may be the cause of the discrepancy in the present study's results. The mediating effect of DA on AOB may seem less strong in this study since the study did not focus on such views or ruminations. This shows that there may be more direct

connections between work-related pressures and displaced aggressiveness in online behaviours if metacognitive beliefs and angry rumination are included. This comparison demonstrates that although Salguero et al. (2020) considered angry rumination to be a primary cause of shifted aggression, the discrepancies in results may be explained by the present study's emphasis on direct anger manifestations (DA) rather than rumination or metacognitive factors.

It is also worth considering the possibility that the participants in the present study's sample may have exhibited lower levels of maladaptive metacognitive beliefs and ruminative tendencies compared to those described by Salguero et al. (2020). Maladaptive metacognitive beliefs, such as feeling unable to control one's thoughts or believing it is necessary to suppress them, can amplify emotional distress (Salguero et al., 2020). Similarly, ruminative tendencies, which involve repeatedly dwelling on anger-provoking events, can intensify and prolong feelings of anger (Salguero et al., 2020). Since these factors were not measured in the current study, it is plausible that the lower prevalence of these factors in the sample reduced the extent to which Displaced Anger mediated the relationship between Work Stress and Antisocial Online Behaviours (AOB). Without strong ruminative cycles, and amplifying anger, the impact of DA on AOB may have been weaker in this study.

5.2.3 Sample Characteristics - Gender

Throughout this study, gender has emerged as a central factor influencing behaviour and emotional expression, shedding light on the non-significant results observed (Fernandez & Malley-Morrison, 2013; Kring, 2000; Vranjes et al., 2020). With the sample predominantly composed of women (71.7%), gender differences in handling stress and anger likely played a crucial role in shaping the findings. Previous studies have demonstrated that men and women process stress in distinct ways: men are more inclined to externalise their stress through aggressive behaviours, while women tend to employ emotion-focused coping mechanisms, such as internalising stress or seeking social support (Rivera-Torres et al., 2013; Vranjes et al., 2020). This gendered pattern in coping mechanisms may explain the relatively lower levels of Antisocial Online Behaviour (AOB) observed in this study, as the majority female sample may have been less inclined to use disruptive online actions as a coping outlet. Instead, they may have preferred prosocial strategies like blogging, self-reflection, or speaking to family and friends (Rivera-Torres et al., 2013). The underrepresentation of men in the sample, who are generally more prone to externalise emotions (Vranjes et al., 2020), might have also contributed to fewer cases of Displaced Anger and AOB in the sample.

Gender socialisation further impacts how anger is expressed, shaping behaviours that could influence the study's outcomes (Gianakos, 2002; Vranjes et al., 2020). Women are frequently socialised to suppress or regulate their emotions, especially in social or professional contexts, which results in less overt displays of anger or aggression (Fernandez & Malley-Morrison, 2013; Gianakos, 2002; Kring, 2000). Men, in contrast, may feel more comfortable expressing anger, particularly in anonymous online settings where the repercussions of acting aggressively are less socially severe (Vranjes et al., 2020). This discrepancy in emotional expression likely contributed to the weaker results regarding Displaced Anger and AOB. Additionally, the absence of specific variables such as trait anger or irritability may have limited the study's ability to capture these gendered differences fully (Fida et al., 2014). Prior studies, such as Fida et al.'s (2014) exploration of irritability as a moderating factor and Smith et al.'s (2005) inclusion of trait anger within the Effort-Reward Imbalance (ERI) model, underscores the significance of individual traits in stress response. Including such variables could reveal whether characteristics like trait anger affect AOB differently for men and women.

Furthermore, comparing this study to Vranjes et al.'s (2020) research highlights additional gendered patterns in Displaced Anger. While Vranjes et al. (2020) found that women's AOB was influenced by their partner's stress and anger, and men were more likely to experience Displaced Anger in response to Work-related Stress. The current study found that men exhibited higher levels of Displaced Anger than women, but without a significant link to AOB, possibly due to the unequal gender distribution within the sample. Unlike Vranjes et al.'s (2020) diary-based design, which allowed for tracking day-to-day variations in stress and anger expression within dual-earner couples, the cross-sectional approach of the present study may have missed nuanced, gendered emotional responses over time (Field, 2013). These limitations of the study's design will be discussed in more detail later on in the discussion chapter. These limitations along with the predominantly female sample, may have obscured patterns specific to male displays of AOB associated with Displaced Anger.

In addition, cultural norms about aggressiveness and emotional expressiveness probably also had a big impact. The low levels of displaced anger and AOB shown in this study may be explained by the socialisation of women to repress violent behaviours and utilise prosocial, relationship-focused coping strategies in many cultures (Fernandez & Malley-Morrison, 2013; Gianakos, 2002; Kring, 2000). Men, on the other hand, are frequently socialised to publicly display their anger, which may account for the greater gender disparities in aggressive

behaviour that have been seen in earlier studies, especially in anonymous online contexts (Vranjes et al., 2020). Given that cultural norms may restrict the display of negative emotions like anger or violence, particularly in public or social contexts including online communities, the sample's cultural background may possibly have contributed to the weaker results.

5.2.4 Additional Sample Characteristics

Another important element that could account for the study's non-significant findings is the sample's demographic characteristics. In addition to gender, several other demographic factors, such as race, culture, occupation, and positional level, may have affected how participants felt and reacted to stress and anger.

5.2.4.1 Race and Ethnic Groups

Racial and ethnic groups have very different cultural standards and expectations about emotional expressiveness and aggressiveness. Emotional control is highly regarded in some cultures, where people may be discouraged from publicly expressing their anger, particularly at work (Matsumoto et al., 2008, 2010). People from collectivist cultures, for instance, can place a higher value on maintaining harmony inside the group and refrain from expressing anger or aggressiveness in public (Matsumoto et al., 2008, 2010). The weak results on displaced rage may be explained by these cultural norms, since participants may have chosen to control or repress their anger in ways that the study's measures did not record. Conversely, people from individualistic cultures might feel more free to express their feelings, including anger, which could result in distinct AOB patterns (Matsumoto et al., 2008, 2010).

Within the current study, a significant proportion of participants identified as Indian (Refer to Table 1 of the Results). This group is often associated with collectivist cultural orientations, where a high value is placed on preserving social harmony (Adams et al., 2012). As previously discussed, maintaining this form of harmony discourages individuals from overt expressions of anger and aggression (Matsumoto et al., 2008, 2010). For participants, regardless of race, this collectivist orientation may also intersect with religious values and teachings, such as Hinduism, Islam and Christianity, which emphasise emotional restraint and prosocial values (Alfain et al., 2023; Bhide, 2007; Lord & Nosanchuk, 1977). For instance, Hinduism, for example, regards anger as a destructive emotion that must be controlled through self-discipline and spiritual practices (Bhide, 2007). Similarly, Islamic teachings promote patience (known as Sabr), forgiveness, and tolerance, discouraging the impulsive expression of anger (Alfain et al., 2023). Christianity, emphasises forgiveness and turning the other cheek, advocating for

restraint in managing anger (Lord & Nosanchuk, 1977). These cultural and religious values could have possibly contributed to more restrained responses to anger and a reduced tendency to engage in Displaced Anger (DA) or Antisocial Online Behaviours (AOB) (Alfain et al., 2023; Bhide, 2007; Lord & Nosanchuk, 1977; Matsumoto et al., 2008, 2010). As religious and cultural values were not specifically measured this could be a set of factors that could explain lower levels of anger and/or lower levels of AOB.

White participants formed the next largest group in the study. This group could have possibly represented a mix of collectivist and individualistic cultural orientations (Adams et al., 2012). For example, Afrikaners traditionally emphasise family and community, aligning with collectivist values (Adams et al., 2012; Matsumoto et al., 2008, 2010). However, English-speaking White South Africans, influenced by Western individualistic values, may lean towards more direct emotional expression and less restraint in anger (Adams et al., 2012; Matsumoto et al., 2008, 2010). This cultural blend means White participants may occupy an intermediate position, with some adopting collectivist tendencies and others exhibiting individualistic behaviours. These variations could contribute to distinct anger expressions and AOB patterns, adding complexity to the observed relationships. Again this was not specifically measured in the sample.

The next significant portion of the sample identified as Black. In the South African context, Black participants are similarly influenced by collectivist norms that emphasise group cohesion and harmony (Adams et al., 2012; Matsumoto et al., 2008, 2010). These norms, as mentioned, discourage overt displays of anger, especially in professional settings, which may explain their relatively restrained expressions of Displaced Anger (DA) (Adams et al., 2012; Matsumoto et al., 2008, 2010). Collectivist values among Black participants align with the broader cultural tendency to prioritise harmony over emotional expression, particularly anger, in public or group contexts (Adams et al., 2012; Matsumoto et al., 2008, 2010).

It is thus important to acknowledge that the present study did not assess participants' religious affiliations, degrees of religiosity, or cultural values. However, these factors could have had a significant role in influencing the expressions and actions of individuals (Matsumoto et al., 2008, 2010). Hence, it is important to recognise and discuss them. For instance, religiously inclined individuals, irrespective of race, may rely on spiritual beliefs to suppress their anger or adopt alternative positive coping mechanisms to cope with stress, thereby reducing the likelihood of displaced anger and antisocial behaviours (Alfain et al., 2023; Bhide, 2007; Lord

& Nosanchuk, 1977). Furthermore, the intersection of collectivist ideals with specific religious principles could create nuanced differences in how anger is experienced and expressed (Adams et al., 2012).

Lastly, cultural norms also shape the type of anger considered acceptable and how it is expressed. This is supported by Lindebaum & Geddes's (2016) research on moral anger, a prosocial type of anger that results from perceived injustice. This form of anger is justified in collectivist communities such as South Africa, whereas expressions of displaced anger which can have negative consequences in comparison to the prosocial actions resulting from moral anger, are widely discouraged (Lindebaum & Geddes, 2016; Matsumoto et al., 2008, 2010). The weaker correlations between WS, DA, and AOB may be explained by this differential, which also explains how cultural norms around emotional expression may restrict overtly aggressive behaviour in some societies.

5.2.4.2 Job Sector

A closer examination of industry-specific characteristics, including job sectors and levels, provides valuable insights into the non-significant connections found in this study between Work Stress (WS), Displaced Anger (DA), and Antisocial Online Behaviour (AOB). A significant portion of the sample comprised participants employed in intermediate positions across Information Technology (IT), Business Management and Consulting, and Accounting and Finance fields (Table 1 in the Results chapter). These sectors, known for their workplace cultures and stress dynamics, may have shaped participants' behaviours and influenced the observed results.

IT professionals often face high-stress environments characterised by demanding schedules, tight deadlines, and complex problem-solving tasks (Mattern et al., 2024). These factors could contribute to workplace stress and potentially prompt expressions of anger such as antisocial behaviour (Bakker & Demerouti, 2007; Mattern et al., 2024). However, as stated by Mattern et al., (2024), IT professionals tend to be tech-savvy, which means they are likely aware of the legal and professional risks associated with engaging in AOB, such as cyberbullying or inappropriate online behaviour. Their familiarity with digital environments might make them more cautious, as they understand the traceability of online actions and the potential consequences of being caught. Additionally, companies like the 'Digital Law Company' in South Africa actively promote cyber ethics and acceptable online behaviour *(The Digital Law Company*, 2024). The 'Digital Law Company' specialise in educating and advising individuals,

corporations, and schools on the legal, reputational, and disciplinary risks associated with social media and digital platforms *(The Digital Law Company*, 2024). These initiatives are reinforced by South African legislation, such as the Cybercrimes Act of 2021, which criminalises malicious communication, including harassment and cyberbullying, with penalties that range from fines to imprisonment of up to three years (*Cyber Crimes Act No. 19*, 2020). Employees aware of the legal repercussions are likely to exercise greater caution.

Furthermore, organisations and their respective IT departments also often foster team collaboration and constructive coping mechanisms, such as mindfulness programs or access to employee wellness resources (Mattern et al., 2024). These organisational efforts, combined with personal resilience techniques, may enable IT employees to discover healthy ways to manage stress, reducing the likelihood of misdirected anger or aggressive online behaviour (Calitz, 2022; Jick & Mitz, 1985; Liu et al., 2022; Rivera-Torres et al., 2013).

Similarly, Accounting and Finance professionals work in a conservative field where compliance, ethics, and professionalism are vital. South African firms like Deloitte and PwC prioritise codes of conduct, emphasising integrity and accountability (Deloitte, 2024; PwC, 2024). For instance, Deloitte promotes ethical social media use by encouraging employees to communicate honestly, accurately, and responsibly, both for business and personal purposes (Deloitte, 2024). They emphasise authenticity by requiring employees to use their real identities and disclose any conflicts of interest, while also encouraging respect for their audience and accountability in online interactions (Deloitte, 2024). Additionally, employees in these organisations undergo regular training on professional standards and risk management, fostering a culture of caution in both personal and professional online interactions. Furthermore, the repercussions for engaging in non-professional behaviour in this sector can be severe, including disciplinary actions, reputational damage, and even dismissal (Deloitte, 2024). For example, violating ethical guidelines outlined by organisations can result in penalties ranging from fines to being terminated (Deloitte, 2024; PwC, 2024). This strong emphasis on professionalism could potentially discourage behaviours such as AOB even outside of work, thus permeating the within work and outside of work spheres, as employees prioritise compliance and reputation management. Moreover, the industry's emphasis on meticulousness and conservative risk-taking may contribute to employees adopting more measured and prosocial approaches to managing stress.

In a similar light, Business, Consulting, and Management professionals operate in a dynamic environment where strategic thinking, effective communication, and client relationship management (McKinsey & Company, 2023). The South African business environment, particularly in firms like McKinsey & Company, emphasises professionalism and reputation management (McKinsey & Company, 2023). Employees are often accountable to clients and stakeholders, which necessitates maintaining a positive public image. In addition, Anti-harassment policies and social media guidelines are common in consulting firms, setting clear expectations for professional online conduct (McKinsey & Company, 2023). For instance, McKinsey & Company's (2023. p. 22) code of conduct states: "When posting (for example, on social media) or communicating in any form (via email, instant message, text, phone), put thought and care into what you write and say because we are a global firm, remember that humour, images, and slang can be perceived as offensive to others in different parts of the world". In addition, employees in these roles may also face legal repercussions under South Africa's Protection from Harassment Act of 2011, which enables individuals to obtain protection against harassers, including for online misconduct (*Protection from Harassment Act 17*, 2011). This awareness of potential legal and professional consequences coupled with workplace policies, likely dissuades employees from engaging in AOB.

5.2.4.3 Job Level

The sample's job levels also provide context for these findings. A significant proportion of the participants held entry-level and intermediate roles. Employees in junior positions may experience stress and anger due to perceived limitations in autonomy or influence compared to those in senior roles (Bakker & Demerouti, 2007; Van Den Broeck et al., 2013). However, these employees might also be more cautious about expressing anger or engaging in AOB, fearing professional repercussions such as disciplinary actions or damage to their career trajectories. Furthermore, in South Africa, workplace training programs addressing issues like racism, sexism, and bullying are increasingly common (Deloitte, 2024; McKinsey & Company, 2023; PwC, 2024; The Digital Law Company, 2024). These efforts, combined with societal attitudes condemning hate speech and aggressive online behaviour, may make employees in junior roles particularly wary about engaging in such behaviours. Moreover, supportive workplace dynamics and access to employee wellness programs can help these employees develop constructive coping mechanisms (Cao et al., 2023; Malik & Pichler, 2022). For example, interventions like stress management workshops or access to mental health resources can help these workers discover healthy methods to manage stress, so this does not always

transfer into misdirected anger or aggressive behaviour online. As the existence of supportive coping interventions were not measured and were therefore not accounted for and this could have influenced the study's findings.

In light of this, the role of organisational culture and policies cannot be overlooked. Many South African companies have adopted comprehensive frameworks to promote prosocial behaviour both in-person and online (Deloitte, 2024; McKinsey & Company, 2023; PwC, 2024; The Digital Law Company, 2024). Policies addressing cyberbullying, harassment, and discrimination are becoming the norm, supported by laws such as the Cybercrimes Act (*Cyber Crimes Act No. 19*, 2020). As discussed above, organisations often incorporate these policies into training programs, encouraging employees to navigate online spaces responsibly. Furthermore, employees who violate these policies may face internal disciplinary measures, including warnings, suspensions, or termination, as well as external legal consequences under South African law (Cyber Crimes Act No. 19, 2020; Protection from Harassment Act 17, 2011; Deloitte, 2024; McKinsey & Company, 2023; PwC, 2024). These organisational efforts combined with societal attitudes condemning antisocial behaviour likely contribute to the non-significant relationships between WS, DA, and AOB observed in this study.

5.2.5 Methodological Constraints

The non-significant results could have been caused by some methodological limitations in addition to measurement problems and the absence of confounding variables. As participants may overstate their capacity to control their stress and anger or underreport their engagement in antisocial behaviours, the use of self-report measures raises the possibility of social desirability bias and response bias (Demetriou et al., 2015; Field, 2013). It may be challenging to measure the correlations between stress, anger, and AOB precisely because of these biases, which can skew the findings.

5.2.5.1 Self-Report Measures

Participants' desire to appear socially acceptable, particularly when responding to sensitive questions like stress, anger, or violent behaviours, frequently affects self-reported findings (Demetriou et al., 2015; Kwak et al., 2021; Wetzel et al., 2016). Research highlights that individuals frequently adjust their responses to align with perceived social norms to avoid judgement and preserve a positive self-image, a phenomenon known as social desirability bias (Demetriou et al., 2015; Gower et al., 2022; Wetzel et al., 2016). According to Paulhus' two-

factor model of Social Desirability Responding (SDR), this bias can occur due to two primary mechanisms (Hart et al., 2015).

The first mechanism, impression management, involves participants consciously adjusting their responses to present themselves in a socially favourable light (Hart et al., 2015). This tendency is particularly pronounced for behaviours deemed counterproductive or deviant, such as trolling, cyberbullying, or other forms of AOB, where respondents may feel discomfort or shame in admitting their actions (Kwak et al., 2021). This tendency may also explain the low frequency of reported anonymous AOB observed in the present study. Although anonymity is often associated with an increased likelihood of engaging in deviant or antisocial online behaviours (Joinson, 2007; Vranjes et al., 2020), participants may have been reluctant to acknowledge such actions due to the negative moral and social connotations attached to them (Kwak et al., 2021). Despite the anonymous nature of the survey utilised in the present study, self-reporting engagement in AOB while using an anonymous account may still be perceived as shameful and morally questionable (Gower et al., 2022; Hart et al., 2015; Kwak et al., 2021), hence leading participants to underreport or withhold such information. This aligns with the concept of impression management, where individuals underreport socially undesirable behaviours to maintain a favourable self-image (Gower et al., 2022; Hart et al., 2015; Kwak et al., 2021). On the other hand, Self-Deceptive Enhancement (SDE) reflects an unconscious bias where individuals may overestimate their own virtue or emotional control, leading them to report themselves as more controlled, less angry, or less involved in such behaviours than they truly are (Hart et al., 2015). This internalised bias can occur regardless of the anonymity of the survey as respondents may genuinely perceive themselves as more capable of managing their emotions, even if their actual behaviours contradict this perception (Hart et al., 2015).

A study conducted by Kwak et al. (2021) focused on examining the extent of social desirability bias in self-reported data, particularly in the context of mobile loafing, which refers to the personal use of mobile internet during business hours. They found that individuals tend to underreport such deviant behaviours, driven by both impression management, where participants did not want to appear lazy or unproductive, and SDE, where they inflated their sense of control over time management to maintain a favourable self-image (Hart et al., 2015; Kwak et al., 2021). Within their research, they emphasised that social desirability bias can distort the relationship between variables when both the independent and dependent variables are affected by it (Kwak et al., 2021). For example, in their study, mobile internet addiction,

neutralisation of mobile loading, and mobile-loafing intention were all found to be significantly influenced by social desirability bias, with participants underreporting their engagement in these behaviours (Kwak et al., 2021).

Similarly, in the present study, the limited associations between Displaced Anger (DA) and AOB may be attributed to participants' reluctance to acknowledge participating in Antisocial Online Behaviour, even when responding to an anonymous survey. Impression management likely plays a role, as participants may downplay or avoid admitting their involvement in such behaviours to present a more socially acceptable image (Hart et al., 2015). Furthermore, due to SDE, participants may have overestimated their ability to control emotions like stress and anger. This overestimation happens because they believe they are better at controlling their feelings than they truly are (Hart et al., 2015). As a result, they may report their emotional regulation as more effective or efficient than it really is. In other words, participants might claim they can control their anger well or use stress-relief techniques effectively, but in reality, these behaviours may show a different side (Hart et al., 2015). This happens not because they are deliberately lying, but because they genuinely believe they are managing their emotions better than they actually are (Hart et al., 2015). This bias can lead to inaccurate reports about the experiences and expressions of emotions, potentially explaining the non-significant relationships observed in this study (Hart et al., 2015; Kwak et al., 2021).

5.2.5.2 Cross-Sectional Study

The cross-sectional design of this study also presents certain limitations in understanding the complex dynamics between Work-related Stress, Displaced Anger, and Antisocial Online Behaviour (AOB) (Wang & Cheng, 2020). Since data was collected at a single point in time, it is challenging to establish causal relationships or capture the temporal progression of emotions, particularly given that stress and anger levels fluctuate over time (Wang & Cheng, 2020). Some individuals may experience a transient rise in stress that quickly subsides, potentially never resulting in Displaced Anger or AOB. A longitudinal design could better capture these fluctuations, providing insights into how stress builds and evolves, potentially culminating in behavioural manifestations over time (Sadighian et al., 2025). Longitudinal research could also account for delayed emotional responses, like the accumulation of anger or dissatisfaction, that may take weeks or months to surface. For example, Fida et al.'s (2014) study used multigroup structural equation modelling to analyse how irritability impacted stress responses across different groups, revealing nuances that a cross-sectional approach might

miss. Further research could similarly employ multigroup or longitudinal designs to examine the role of personality traits in AOB over time.

The timing of data collection also plays a significant role in interpreting the non-significant results in this study (Wang & Cheng, 2020). If the survey was conducted during a period of reduced workplace stress, perhaps following the completion of major projects or during a slower time of the year, participants' stress and emotional responses may not accurately reflect their usual experiences. This could explain the relatively low levels of Stress, Displaced Anger and AOB observed in the results - this can be supported by an examination of the mean, maximum, and minimum values in Table 2 of the results section. These values indicate that the sample was scoring on the lower end of the range of Work-related Stress (WS), Displaced Anger (DA), and AOB. Additionally, stress is a dynamic process; as external factors like workload, team dynamics, or personal situations shift, so do participant's stress levels and emotional responses. A cross-sectional snapshot may not fully capture these fluctuations, whereas a longitudinal design could provide a more comprehensive view of how stress and anger shift over time and impact behaviours in different contexts (Sadighian et al., 2025; Wang & Cheng, 2020). By monitoring stress and emotional responses over multiple time points, future studies could gain valuable insights into the temporal dynamics of stress and its influence on behaviours like AOB.

Furthermore, comparing this study's cross-sectional approach to Vranjes et al.'s (2020) daily diary methodology highlights the importance of capturing time-sensitive emotional responses to workplace stressors. Vranjes and colleagues (2020) gathered real-time data on Stress, Anger, and AOB over several days, enabling a nuanced view of how emotions like Displaced Anger change over time in response to everyday challenges. This longitudinal approach contrasts with the present study's singling-point data collection, which may overlook cumulative stress effects and evolving emotional patterns. For instance, if participants, had managed to resolve their anger or had experienced reduced stress at the time of the survey, the immediate influence of Stress on Displaced Anger and AOB could have appeared weaker. Vranjes et al.'s (2020) diary approach, by gathering data closer to actual stress events, likely captured acute emotional reactions that might otherwise dissipate or go unreported in a one-time survey.

Similarly, Malik & Pichler's (2022) study, which employed a time-lagged methodology, further illustrates the value of examining emotions and behaviours over extended periods. By collecting data in two waves over a one-month interval, they examined how workplace

stressors, such as perceived organisational politics, led to negative emotions like anger and fear, which in turn influenced cyberbullying perpetration (Malik & Pichler, 2022). This temporal approach allowed Malik & Pichler (2022) to observe how repressed anger from work-related stress eventually manifested as AOB, which a cross-sectional design may miss. Applying a similar time-lagged methodology in future research could reveal delayed effects of Work-related Stress on AOB, capturing how unresolved anger may surface as antisocial behaviours over time.

Finally, Kweon et al.'s (2008) experimental lab-based study offers insight into the effects of the environment on state anger and stress, illustrating the benefits of controlled observational settings. By manipulating the office environment, such as displaying nature-themed artwork, and measuring participants' stress and anger responses, Kweon and colleagues (2008) provided direct evidence of how environmental factors can modulate emotional states. In contrast, the present study relied on self-reported, retrospective assessments of stress and anger in real-world settings, with no control over the participants' environments or external stressors. This difference in methodology may account for some of the weaker correlations observed in this study. Kweon et al.'s (2008) findings suggest that environmental factors, such as exposure to nature, can reduce stress and anger, which could in turn lower the likelihood of Displaced Anger and AOB. Including environmental factors in future research might reveal additional influences on the pathway from stress to anger and antisocial behaviours, offering a more holistic understanding of these relationships.

5.2.6 Alternative Use of Social Media

Participants' adaptive use of social media as a constructive coping strategy may account for the non-significant associations between work-related stress, displaced anger, and antisocial online behaviour found in this study. According to research by Wolfers and Utz (2022), social media can serve as a resource as well as an emotion-focused coping mechanism, giving users opportunities for mental disengagement and socioemotional support. Social media gives people access to socioemotional support by providing a platform for communication with friends, family, or online communities (Wolfers & Utz, 2022). This fosters a sense of community and emotional release, which can act as a protective barrier against rising stress levels (Wolfers & Utz, 2022). People may look for consoling social connections that offer empathy and understanding online during periods of high work-related stress, which reduces the possibility that this tension would manifest as displaced anger or aggressiveness. This coping strategy

aligns with the transactional model of stress and coping, which emphasises how important social support is in reducing stress and keeping it from turning into detrimental emotional effects (Sun et al., 2023; Wolfers & Utz, 2022).

In support of this, Sun et al. (2023) highlighted that using social media for mental disengagement, like interacting with amusing or enjoyable information, might reduce stress and enhance psychological adjustment. This coping strategy gives individuals a short-term yet efficient way to escape their emotions, enabling them to address their emotions before stress translates into antisocial behaviour or misplaced anger. Here, the idea of situational fit is essential; mental detachment, which enables people to control their stress levels without transferring them to other encounters, may be especially useful for reducing overall work-related stress (Sun et al., 2023). Participants in the current study may have effectively reduced their stress before it might have detrimental emotional or behavioural effects if they primarily used social media for mental disengagement or socio-emotional support. When combined, these studies collectively shed light on how constructive social media use can serve as useful stress relievers, which may help to explain why the present study found no significant associations between stress, anger, and antisocial online conduct.

Cowling reports that as of January 2024, there were 45.34 million active internet users in South Africa, and approximately 26 million of those users (accounting for approximately 42.8 percent of the total population) were engaged in social media (Cowling, 2024a). Given the high level of social media use in South Africa (Cowling, 2024a, 2024b, 2024c), it is conceivable that participants' constructive use of social media as a stress-reduction strategy could account for the study's non-significant associations between work-related stress, displaced rage, and deviant online behaviour. With platforms like Facebook, Instagram, and WhatsApp dominating the social media landscape in South Africa, where social media penetration has grown threefold in 2023, many people use the internet to stay entertained, informed, and engaged (Cowling, 2024b, 2024c). According to Statista, a significant percentage of South Africans (66%), particularly younger ones, use social media to stay in touch with family and friends, find amusing content, and look for support from others when things go tough (Cowling, 2024b, 2024c). According to research by Wolfers and Utz (2022), social media can be utilised as a tool for emotion-focused coping, giving users a stress-reduction strategy via facilitating social connections and emotional venting. South Africans utilise social media extensively for socioemotional support, which may help reduce stress before it manifests as aggressiveness or

resentment. Additionally, research by Sun et al. (2023) supports this idea by demonstrating that a large number of users utilise social media for mental disengagement, temporarily relieving stress through humour and amusement. Given that the majority of South Africans use social media for entertainment, this constructive, diversionary activity may help *reduce* work-related stress without leading to destructive behavioural and emotional outcomes (Cowling, 2024b, 2024c; Sun et al., 2023). These aspects lend credence to the theory that the non-significant relationships observed in this study may be the result of participants using social media as a tool for constructive stress relief, engaging in distraction-based and supportive activities that keep stress from turning into displaced anger or antisocial online behaviours.

5.3 Theoretical Implication of Findings

The absence of significant findings, particularly the non-significant mediation of displaced anger, suggests that the Frustration-Aggression Displacement Model (FADM) may not fully capture the dynamics between work stress and online behaviour within the present group and context. Other theoretical models, such as the Conservation of Resources Theory (COR) and Affective Events theory (AET) may offer a more comprehensive explanation of the stress, anger, and AOB relationships. In addition, the study also highlights how crucial gender-sensitive and culturally aware methods are to comprehend stress reactions.

5.3.1 Challenge to FADM

The results challenge the theory that stress causes displaced anger, which in turn causes aggressive behaviours such as antisocial online behaviour (AOB) (Breuer & Elson, 2017). The absence of a significant mediation effect of displaced anger suggests that emotional responses to stress are not universally aggressive or antisocial and are likely moderated by personal factors, such as coping strategies, personality traits, and workplace culture (Fida et al., 2014; Liu et al., 2022; Malik & Pichler, 2022; Rivera-Torres et al., 2013). These results align with Fida et al.'s (2014) findings, which show that personality traits such as irritability influence stress responses, reinforcing the need to include individual differences in models that examine stress and anger.

In addition, as mentioned earlier there are a multitude of personality variables that were not measured that could have influenced this study's finding (see section 5.2.2.1). In particular, positive personality traits and personal resources could have played a significant role in peoples' abilities to better cope with workplace stress (Mosley & Laborde, 2016; Vollrath, 2001). Traits such as personality hardiness, resilience, optimism, and self-efficacy may enable

individuals to regulate their emotional responses to stress better and resolve feelings of frustration and anger before they manifest in negative behaviours like AOB (Mosley & Laborde, 2016; Vollrath, 2001). Personality hardiness, for example, is associated with a strong sense of control and commitment, allowing individuals to view stressors as challenges rather than threats (Mosley & Laborde, 2016). This adaptive mindset facilitates healthier coping mechanisms and mitigates the risks of displaced anger. Similarly, psychological capital, which encompasses resilience, optimism, hope, and self-efficacy, provides individuals with the psychological resources necessary to persevere and maintain an emotional balance (Rabenu et al., 2017). Resilient individuals, for instance, are more likely to recover quickly from setbacks and use constructive problem-solving techniques to manage stress effectively (Rabenu et al., 2017). Optimism and self-efficacy further enhance an individual's ability to perceive stressors as manageable and maintain confidence in their ability to navigate workplace challenges successfully (Rabenu et al., 2017; Vollrath, 2001).

These positive traits and resources suggest that individual differences significantly influence how stress is experienced and managed. Incorporating measures of personality traits and personal resources in future studies could provide a more nuanced understanding of how stress translates into emotional and behavioural outcomes.

5.3.2 Theory of Conservation of Resources

COR Theory offers another viewpoint on the tenuous connection between stress and AOB. According to the COR theory, people work hard to preserve and safeguard their emotional and psychological reserves, and when stress depletes them, they may resort to resource-conserving behaviours like avoidance or withdrawal instead of acting aggressively (Holmgreen et al., 2017). The study's minimal correlation between work stress and AOB may indicate that individuals chose to conserve their remaining emotional energy by avoiding online platforms or using less forceful coping mechanisms rather than displacing their anger or participating in AOB. According to COR theory, long-term stress wears down emotional reserves, which can result in burnout or emotional exhaustion (Holmgreen et al., 2017). These conditions may lessen the propensity for violent behaviours in favour of more passive coping mechanisms. This is consistent with Smith's Effort-Reward Imbalance (ERI) model, which highlights that long-term stress - especially from perceived injustices - can have negative health effects as opposed to triggering violent reactions right away (Babamiri et al., 2022). Future studies should

look at whether withdrawal behaviours, emotional weariness, or burnout occur more frequently than AOB in high-stress situations.

5.3.3 Affective Events Theory (AET)

Affective Events Theory (AET) posits that specific workplace occurrences or situational stressors - like interpersonal disputes, critical feedback, performance demands, or narrowly missing a deadline - are more likely to trigger immediate and intense emotional reactions, such as anger or frustration (Ohly & Schmitt, 2015). These acute emotional reactions are more likely to influence behaviours like AOB, as individuals may use online platforms (more immediately) as an outlet for venting their emotions in a less confrontational manner. This contrasts with the effects of long-term, widespread stress, which often elicits more diffuse and generalised emotional responses.

In the present study, Work Stress (WS) was measured using three scales: the Interpersonal Conflict at Work Scale (ICAWS), the Organisational Constraints Scale (OCS), and the Quantitative Workload Inventory scale (QWI). These scales captured a broad and cumulative view of workplace stressors such as interpersonal conflict, procedural challenges, and workload pressures. While these measures effectively assessed generalised stress levels, it is possible that these measures may have not adequately distinguished between acute, high-intensity stress events and low-intensity stress exposure. This distinction is central to AET, which emphasises the role of specific, high-intensity stressors in eliciting emotional responses that translate into behaviours like AOB (Ohly & Schmitt, 2015).

For instance, the WS measure utilised in this study asked respondents questions such as “How often do they experience interpersonal conflict at work”, aggregating the frequency of such experiences without capturing the emotional intensity or situational context. By contrast, an AET-aligned approach may ask respondents to recall a recent instance of interpersonal conflict and assess their emotional and behavioural reactions to that specific event (Ohly & Schmitt, 2015). For instance, questions might include: “Think about the last time you had a serious disagreement with a colleague. How did this make you feel? Did it influence your online behaviour afterwards?” or items such as “After a workplace disagreement, have you posted or liked a negative comment online?”

However, while these phrasing adjustments could elicit clearer links between WS, emotional responses, and AOB, they also present challenges. Specifically, the respondents might identify

the study's aim, potentially increasing social desirability bias and leading to less accurate self-reports. This was a key reason for the generalised phrasing in the current study's measures.

Nevertheless, it is possible that the generalised focus of the WS measure used in this study may have diluted the intensity of the stress-emotion connection necessary to predict AOB. For instance, while an employee experiencing persistent workload stress may feel overwhelmed, they might not exhibit the same intense anger as someone dealing with a singular, high-stress event, such as public criticism from a manager. Such acute emotional responses are more predictive of AOB under the AET framework. Hence, AET-aligned methodologies that focus on situational stressors, such as workplace diaries or scenario-based surveys could be employed by future research. These approaches could allow the researchers to better understand how specific events elicit emotional reactions that could lead to actions such as AOB.

5.3.4 Kubler Ross's Change Model

The five phases of mourning that people go through when they encounter major life changes - denial, anger, bargaining, depression, and acceptance - were first described by the Kubler-Ross Change Model in relation to the dying and death of a significant other (Wang & Wang, 2021). Although this is a model of the process of dealing with dying and death this model has been widely modified to describe how people adapt to major life changes and how they manage a range of stressors, including stress at work (Chavan & Bhattacharya, 2022). The non-significant correlations between work stress, displaced anger, and antisocial online behaviour (AOB) in this study may thus be explained to some extent using the Kubler-Ross model.

The Kubler-Ross model states that when people react to stress or change, they go through a number of emotional phases, as mentioned above, these include denial, anger, bargaining, depression, and acceptance (Wang & Wang, 2021). It's possible that the study's participants were caught when they had already moved on to the model's acceptance stage, where they had dealt with or reconciled with their stress. An individual's emotional responses to stress, especially anger and rage, drastically decrease after they reach the acceptance stage (Chavan & Bhattacharya, 2022; Wang & Wang, 2021). The lack of a substantial association between work stress and displaced anger, as well as the lack of displaced anger's mediation effect on AOB, may be explained by the fact that they no longer feel the need to express or displace their anger. Furthermore, participants' emotional reactions may have stabilised and resulted in more adaptive coping strategies if they had previously experienced elevated levels of anger but had already progressed past the anger or bargaining stages (Chavan & Bhattacharya, 2022; Wang

& Wang, 2021). As a result, there might have been fewer cases of AOB and displaced anger during the data collection period. Emotional responses are essentially captured by timing, and the Kubler-Ross model posits that the participants' emotional resolution (over time), may account for the lack of significant associations (Chavan & Bhattacharya, 2022; Wang & Wang, 2021). According to this notion, it would be useful for future studies to monitor people's emotional reactions throughout time, that is longitudinally, to record changes in stress and anger.

5.3.5 Job Demands - Resources Theory

Another alternative model to examine the variables in this study could have been the Job Demands-Resources (JD-R) model, which postulates that low resources (like social support) combined with high job demands (such as workplace bullying or cyberbullying) result in detrimental effects like turnover and depression (Bakker & Demerouti, 2007). Alternatively, when resources are high, even in the presence of high demands more positive health outcomes are experienced (Bakker & Demerouti, 2007). The lack of a particular theoretical model, such as JD-R, in the present study, might make it more difficult to make connections between AOB, support networks, and workplace stress. Since resource buffers like social support at work and coping methods weren't assessed, not using a framework that incorporates some aspects of the JD-R, at the very least, work resources, may be the reason the current study was unable to determine the possible existing variables that could have confounded the finding of any significant relationship between stress and AOB.

5.3.6 Gender-Sensitive Frameworks

The sample's gender distribution (71.7% female) and the observed variations in coping provide a potential explanation for the lack of significant relationships between Work Stress (WS), Displaced Anger (DA), and Antisocial Online Behaviour (AOB). This underscores the necessity of incorporating gender-sensitive frameworks into research on stress and AOB. The notion that women frequently internalise stress and utilise emotion-focused coping mechanisms rather than overt hostility is supported by research on gender and emotional reactions, such as Fernandez & Malley-Morrison (2013), Gianakos (2002), and Kring (2000). This pattern could likely reduce the likelihood of stress manifesting as overt aggression, even in anonymous online contexts. On the other hand, because social norms encourage males to vent their anger, particularly in anonymous contexts like online platforms, may create a stronger link between stress and AOB (Vranjes et al., 2020).

Expanding this discussion, Bernstein and Trimm's (2016) exploration of coping styles, as informed by Olafsson and Johannsdottir (2004), provides a useful framework for interpreting these dynamics. They identified four distinct coping styles: seeking help, assertiveness, avoidance, and doing nothing (Bernstein & Trimm, 2016). Active strategies such as seeking help, which involves enlisting social or organisational support, and assertiveness, characterised by standing one's ground, are associated with better psychological outcomes (Bernstein & Trimm, 2016). In contrast, passive coping strategies such as avoidance and doing nothing often exacerbate stress but may still inhibit overt aggressive behaviours. These tendencies align with the possible coping strategies that are likely to predominate within the predominantly female sample.

Integrating this framework with gendered coping tendencies offers a nuanced perspective. The sample's possible inclination toward internalising stress and passive coping could explain the absence of Displaced Anger (DA) and AOB despite work stress. These insights underscore the importance of gender-sensitive research that examines how individual coping styles and societal expectations influence stress responses. By exploring these dynamics further, future research can provide deeper insights into the role of gendered coping in moderating stress reactions and their influence on aggression, particularly in online and workplace settings.

5.4 Practical Implication of Findings

The study's findings also have significant applications in workplace management and interventions aimed at reducing the negative impact of stress on employee behaviour, particularly in online contexts. The results offer organisations practical ways to mitigate the impact of stress and efficiently control online behaviour. Furthermore, by acknowledging gender differences and cultural impacts, organisations can improve employee support and create a more respectful and cohesive work environment.

5.4.1 Workplace Interventions for Stress Management

Given the weak relationship between work stress and AOB, organisations should prioritise early interventions and proactive stress management programs to effectively handle workplace stress and reduce the likelihood of antisocial online behaviours (AOB) and other detrimental outcomes. These programs may incorporate instruction in emotional regulation methods like problem-solving, mindfulness, and cognitive reappraisal, which give staff members useful skills for effectively handling stress (Cao et al., 2023; Jick & Mitz, 1985; Liu et al., 2022). Organisations can help employees manage their stress and keep it from turning into misdirected

anger or AOB by cultivating emotional regulation skills. This is supported by the results of the present study, as one of the considerations for the lack of relationships is accounted for by the possibility of the sample engaging in coping strategies that could have mitigated the impact of stress on anger or antisocial behaviour. Furthermore, tailoring these strategies to employees' individual traits can enhance effectiveness (Fida et al., 2014). For instance, As previously mentioned, according to Fida et al.'s (2014) research, irritability influences how people react to stress, which implies that personality-specific stress management programs may be particularly successful. For example, those with high levels of irritation could benefit from focused therapies that help them control their emotional reactivity and reduce the likelihood of stress-related bad behaviours.

In addition, organisations could also set up wellness initiatives that encourage good coping strategies and emphasise early intervention. Providing employees with stress management tools, including counselling, flexible scheduling, or assistance with conflict resolution, might reduce the likelihood that stress will manifest itself in antisocial online behaviour or workplace disputes (Malik & Pichler, 2022; Olynick & Li, 2020). Employees with high intelligence and emotional control are less likely to act aggressively under pressure, according to research (Fida et al., 2014; Garfinkel et al., 2016). Employees might thus be better prepared to manage stress through workshops and training that improve emotional control, cognitive reframing, and problem-solving abilities (Olynick & Li, 2020). Positive results can also result from establishing a welcoming workplace where candid discussions regarding stress are welcomed (Olynick & Li, 2020). While peer support networks may give a common area for staff members to share efficient stress-management techniques, managers who have been educated to spot the early warning signs of stress can provide prompt assistance (Cao et al., 2023; Malik & Pichler, 2022; Olynick & Li, 2020).

5.4.2 Gender–Sensitive Approaches

The study's findings on gender differences in Displaced Anger and AOB suggest that organisations should consider gender-sensitive interventions when addressing workplace stress and anger. According to research, women prefer to internalise stress and adopt emotion-focused coping mechanisms, whereas men are more likely to feel displaced anger when under stress (Fernandez & Malley-Morrison, 2013; Gianakos, 2002; Kring, 2000; Vranjes et al., 2020). Kweon et al.'s (2008) findings on gender-specific responses to environmental cues suggest that physical modifications, like nature-inspired environments, could help reduce anger

in men, while women may benefit more from emotion-focused coping strategies. Programs for stress management should be designed with these distinctions in mind.

For Male Employees: Companies should provide male-specific aggression management workshops that teach them healthy ways to vent their tension and anger (Vranjes et al., 2020). These programs might emphasise conflict resolution techniques that assist workers cope with stress without turning to antisocial behaviours in the workplace or online, or they might emphasise good outlets for anger, such as physical activity. Additionally, emphasis could be placed on training in emotional regulation skills like anger management and impulse control.

For Female Employees: Given their propensity to internalise stress, emotion-focused coping techniques may be emphasised in stress management programs for female employees (Fernandez & Malley-Morrison, 2013; Gianakos, 2002; Kring, 2000). To assist women, in handling their stress in healthy ways, this could involve teaching them journaling techniques, mindfulness, or how to seek out social support. These programs might also concentrate on minimising the internalisation of stress, which can result in emotional tiredness or burnout and have detrimental long-term implications on well-being and productivity.

5.4.3 Preventing AOB

Organisations should incorporate online behaviour management into their cybersecurity and ethical training programs to prevent antisocial online behaviour (AOB). Employees can learn proper online etiquette, the effects of antisocial behaviour in digital places, and the value of remaining professional in virtual interactions - even when under pressure. Kowalski et al.'s (2018) studies on cyberbullying and workplace rudeness emphasise the importance of early interventions to prevent the detrimental effects of AOB.

5.4.4 Broader Policies

The results of the study emphasise the necessity of thorough organisational policies that foster cultural awareness, support mental health, and promote civil conduct online.

5.4.4.1 Mental Health and Wellbeing

Policies that put mental health and emotional well-being first, such as counselling services, mental health days, and candid conversations about stress and emotional health, can lessen the stigma associated with mental health issues (Malik & Pichler, 2022; Olynick & Li, 2020). Promoting early stress management among staff members helps keep stress from developing into more severe problems like burnout or AOB. Smith's ERI model emphasises the

significance of balanced effort and reward systems by indicating that providing equitable remuneration and acknowledgement can help reduce stress-related anger and rage (Babamiri et al., 2022).

5.4.4.2 Cultural Sensitivity

How people express their feelings and handle stress is also, as discussed, greatly influenced by cultural conventions. Programs run by organisations in multicultural settings should be culturally sensitive, allowing a range of backgrounds and honouring cultural variations in emotional expression. This sensitivity enhances program relevance and effectiveness, as employees feel that their cultural and personal identities are valued and understood.

As noted in section 5.2.4.1, Lindebaum & Geddes' (2016) work supports the above as it allows one to distinguish between moral anger, which stems from perceived injustice and often leads to prosocial actions, versus displaced anger, which is redirected at unrelated targets and may result in antisocial behaviours. Their research underscores the importance of culturally attuned interventions that account for these differences, as cultural values significantly influence whether emotional expressions, like moral anger, are encouraged or discouraged. By considering these variations, organisations can design more effective and inclusive programs that encourage constructive responses to stress.

5.4.4.3 Promoting Prosocial Online Behaviour

By creating rules for civil online interactions and regularly reiterating these norms through training, organisations can promote a positive online culture. According to Lindebaum & Geddes' (2016) research on moral anger, prosocial consequences might result from the anger that is sparked by a desire to correct injustice. Employers can promote healthy reactions to stress at work and eventually create a positive digital environment by teaching staff members how to identify and control various forms of anger, such as moral versus displaced anger.

5.4.5 Summary

The non-significant findings in this study may be attributed to a variety of factors, including measurement limitations, sample demographics, confounding variables, methodological constraints, and contextual influences. Specifically, the study’s cross-sectional design, gender imbalances, and the limited reliability of the AOB scale likely contribute to lower associations between Work-related Stress (WS), Displaced Anger (DA), and Antisocial Online Behaviour (AOB). Theoretical Frameworks like Conservation of Resources (COR), Affective Events

Theory (AET), and JDR theory could offer alternative perspectives that consider more complex stress-response pathways. Future research could benefit from the longitudinal design, improved assessment tools, and the inclusion of individual and organisational moderators to better capture the pathways from job stress to displaced anger and AOB. These results underscore the complex relationships between online behaviour, anger, and work-related stress, challenging the assumptions of the FADM and suggesting that frameworks such as COR, AET, Effort-Reward Imbalance (ERI), and Kubler Ross's change model might more accurately represent the nuanced ways people respond to stress. From a practical standpoint, the findings emphasise the need for tailored workplace interventions that account for the environment and individual factors, recognising the diversity in emotional expression and coping mechanisms among employees. By implementing gender-sensitive and culturally informed policies, organisations can create a supportive environment that not only reduces workplace stress but also promotes constructive coping strategies, thereby decreasing the likelihood of antisocial online behaviour.

5.5 Limitations

This study has provided valuable insights into the relationships between Work-related Stress (WS), Displaced Anger (DA), and Anti-social Online Behaviour (AOB). However, while evaluating these results, several limitations need to be taken into account. These limitations have an impact on the study's validity, generalisability, and depth of conclusions drawn from the study.

5.5.1 Demographics and Sample Size

With 145 individuals, the study's sample size was adequate for some analyses but constrained for examining intricate linkages like mediation and moderation effects. Type II errors, in which significant effects are missed, can occur when sample sizes are too small because they lower statistical power (Field, 2013). This is especially important for the mediation study because it usually takes larger sample numbers to discover indirect effects (Field, 2013; Hayes, 2018). In subsequent studies, increasing the sample size may improve statistical power, offer more variety and representativeness, and maybe uncover more robust correlations between variables.

The sample's demographic composition introduces additional limitations. With 71.7% of participants being female, there is potential for gender bias, which may have affected findings related to gender differences in AOB. Research consistently shows that gender plays a significant role in how stress and anger are experienced and expressed, particularly in the

context of online behaviour (Vranjes et al., 2020). The overrepresentation of female participants may limit the generalisability of the findings to broader populations and make it challenging to capture gender-specific tendencies in behaviour. A more balanced gender distribution in future studies could yield more accurate comparisons and potentially reveal stronger or more nuanced gender effects. Additionally, incorporating diverse industries and a range of job roles would increase the external validity of findings, capturing a broader array of workplace dynamics and their emotional impacts.

5.5.2 Scale and Measurement Reliability

The reliability of the AOB scale, particularly after outliers have been eliminated, is a significant limitation of this study. After the removal of outliers, the Cronbach Alpha of the AOB scale dramatically dropped to a value of 0.543, which is considered to be the borderline acceptance of the generally recognised level for internal consistency (Field, 2013). This suggests that the AOB scale's items did not adequately reflect the diversity of antisocial online conduct exhibited by the participants in this study. The low reliability of the AOB scale could have possibly contributed to the weak or non-significant findings, especially in analyses involving mediation or moderation effects, by introducing measurement errors that attenuated the observed relationships.

As mentioned above, the AOB scale may not have sufficiently captured the complexity of online behaviours, which can vary from moderate trolling to more extreme forms of online hostility, as indicated by its weak reliability. A multidimensional scale that better distinguishes between AOB types and intensities might better represent the variety of behaviours in future studies. AOB would be measured more consistently with the use of reliable psychometric instruments and validated scales, which might improve the precision and nuanced interpretation of results. Although the present researcher endeavoured to seek out to find and utilise a measure of AOB that was reliable and had been widely used, it does seem that this measure was not suitable for the population under study. Far greater attention needs to be paid to scale/instrumentation development on a South African sample, which would entail the following steps:

First, it is essential to define and conceptualise the construct of Antisocial Online Behaviour, ensuring it is relevant and reflective of the South African context (Bernstein, 1992; Carpenter, 2018). This could involve identifying key dimensions of AOB, such as trolling, cyberbullying, or other hostile online behaviours, through interviews or focus groups with South African

internet users. The next step would be to generate items that comprehensively cover these dimensions, ensuring their relevance (Bernstein, 1992; Carpenter, 2018). This is particularly important in the South African context, where cultural norms, linguistic diversity, and varying levels of digital access may shape how individuals engage in and report Antisocial Online Behaviours (AOB). Subject-matter experts could then review these items to ensure content validity and refine any ambiguous or inappropriate wording (Bernstein, 1992; Carpenter, 2018). Following this, a pilot test of the scale should be conducted on a representative South African sample to identify problematic items and assess the scale's structure through Exploratory Factor Analysis (EFA) (Bernstein, 1992; Carpenter, 2018). Validity testing, encompassing content, construct, and criterion validity, would be crucial to confirm that the scale accurately captures the intended behaviours (Bernstein, 1992; Carpenter, 2018). Reliability testing including internal consistency (Cronbach's Alpha) and test-retest reliability, would further ensure that the scale is stable and consistent over time (Bernstein, 1992; Carpenter, 2018).

Additionally, relying solely on quantitative methods may not fully capture the complexity of Antisocial Online Behaviours. A mixed methods approach that integrates qualitative research could significantly enrich the depth of understanding (McBride et al., 2019; Mcleod, 2024). For example, as previously discussed, Vranjes et al., (2020) demonstrated the value of a diary approach in capturing dynamic, real-time data that a cross-sectional survey could not provide. Diaries or experience sampling methods allow participants to report events as they occur, offering greater ecological validity and reducing bias (McBride et al., 2019; Mcleod, 2024). Incorporating qualitative interviews alongside quantitative measures could also enhance the richness of the data collected on the topic (McBride et al., 2019; Mcleod, 2024). Interviews enable researchers to explore the motivations, perceptions, and contextual factors underlying AOB, which are often difficult to measure through structured scales alone (McBride et al., 2019; Mcleod, 2024). This mixed-method and longitudinal approach would enable future researchers to identify patterns over time and provide a more comprehensive understanding of AOB.

As highlighted above, the development of a robust psychological assessment of AOB is a complex and in-depth research process. Such an undertaking would constitute a significant study in its own right and was beyond the scope of this research report. Nevertheless, this study recognises that the development of a suitable and rigorous measure cannot be ignored. Future

researchers must focus on creating an instrument that not only adequately captures the multidimensional nature of AOB but also demonstrates a strong face, convergent, and discriminant validity, along with high internal reliability (Bernstein, 1992; Carpenter, 2018). Furthermore, adopting a mixed-method longitudinal approach could enhance the richness and reliability of data, ultimately advancing research on AOB and ensuring that future studies are equipped with the tools needed to accurately measure this construct (McBride et al., 2019; Mcleod, 2024).

5.5.3 Anger and Workplace Stress Correlation

Workplace stress and displaced anger were found to have a weak, non-significant connection ($r = 0.09$, $p = .27$). However, a larger correlation was found with a single item evaluating overall sentiments of anger rather than displaced anger when looking at certain subscales of job stress, such as workload stress and interpersonal stress. This implies that rather than misplaced forms, direct outbursts of anger may be more directly associated with components of work-related stress. The study might have understated the wider emotional effects of work stress on participants by concentrating only on displaced anger.

Redirecting anger towards safer targets (such as family, friends, or internet activities) instead of the original source is known as "displaced anger" (Salguero et al., 2020). Anger, however, can take many different forms, such as direct rage or irritation, which were not assessed in this study. Since other types of anger may be more immediate reactions to pressures at work, they may have demonstrated higher associations with job stress. Future research could benefit from incorporating a multidimensional measure of anger that accounts for both direct and displaced forms in addition to frustration to overcome this limitation.

Furthermore, even though different forms of stress (such as workload stress and interpersonal stress) may have varied correlations with anger, the analysis method considered work stress as a single, cohesive construct. General sentiments of anger (not displaced anger) were more strongly correlated with the work stress subscales (interpersonal stress, for example). This suggests that dissecting work-related stress into its constituent elements can yield a more lucid understanding of its affective consequences. In order to provide more detailed insights into the emotional effects of workplace stress, future research should look at particular stressors and their direct and indirect links with different types of anger.

5.5.4 Methodological Constraints

Another significant drawback of this study, as mentioned, is its cross-sectional design (Wang & Cheng, 2020). Cross-sectional designs limit the ability to establish causal links between variables by capturing data at a single time point (Wang & Cheng, 2020). Although this study found weak, non-significant relationships between WS, DA, and AOB, it is unable to establish whether displaced anger results from work stress or vice versa. Over time, these correlations might be influenced by reciprocal interactions or other unquantifiable causes. A more conclusive knowledge of causative pathways would be possible with a longitudinal strategy that monitors changes over time, maybe illuminating how WS translates into DA or AOB (Sadighian et al., 2025).

The use of self-report measures, which are prone to biases like response bias and social desirability, is another methodological limitation (Demetriou et al., 2015). In order to portray themselves in a positive light, participants may underreport stress, displaced anger, or antisocial behaviour, particularly when discussing delicate subjects like online aggressiveness and hostility (Demetriou et al., 2015; Wetzel et al., 2016). Alternatively, they can overestimate their capacity to control their anger and stress, which would produce inaccurate statistics. Instances in which individuals did not experience elevated levels of stress, anger, or AOB during data collection may not be captured by retrospective self-reports. In order to get a more accurate picture of participants' behaviours and emotional reactions, future research could overcome these constraints by employing triangulation techniques, which combine self-reports with behavioural observations or digital tracking.

5.5.5 Analytical Limitations

The intricacies of the connections between WS, DA, and AOB might not be adequately captured by the analytical methodology employed in this study, which included mediation analysis and Pearson correlations. The study did not make use of more sophisticated statistical methods, including structural equation modelling (SEM), which might provide a more thorough investigation of numerous pathways and indirect effects, even if mediation analysis was carried out (Gunzler et al., 2013). A more thorough examination of the ways in which elements like personality traits or coping strategies affect WS, DA, and AOB might be possible with the use of SEM, which allows researchers to model complex connections with latent variables and many mediators (Gunzler et al., 2013). Future studies that use SEM may be able to better understand how stress, emotions, and online behaviours interact. As mentioned,

however, sample size was a problem, with the sample being too small. A sophisticated analysis such as an SEM requires a larger sample size which the researcher was not able to collect in the limited time possible, despite exhausting all avenues.

Stronger, more precise associations between anger and AOB may also be found by examining job stress subcomponents (such as interpersonal conflict vs workload stress). Individual WS subscales were more strongly correlated with overall anger than the WS scale as a whole, which did not exhibit any significant associations with either DA or AOB. This suggests that anger may be influenced differently by various stressors. To learn more about how different stressors affect emotional and behavioural reactions, future research should thoroughly examine these subcomponents.

5.5.6 Cultural Context and Generalisability

The cultural and contextual characteristics of the sample, which was selected from particular work sectors like business and information technology, limit the study's generalisability. The results may not be as applicable to workers in other sectors due to the distinct pressures, work culture, and online behaviour standards found in these businesses' workplaces (Cao et al., 2023; Malik & Pichler, 2022; Mattern et al., 2024). Moreover, the display of stress and anger might have been impacted by the cultural setting. People may be more prone to repress their anger in societies that restrict the outward display of negative emotions, which could account for the weak correlation between WS and DA (Matsumoto et al., 2008, 2010). Future studies ought to think about enlisting a bigger, more culturally varied sample from a range of industries, possibly incorporating a cross-cultural comparison component to ascertain how different norms impact the relationship between WS, DA, and AOB.

5.5.7 Outliers and Data Integrity

Another restriction was brought about by the removal of outliers to satisfy parametric assumptions for the AOB scale. Although this process was required to maintain statistical integrity, it might have decreased sample variability, which could have impacted the capacity to identify nuanced correlations between variables (Field, 2013). Eliminating outliers may restrict generalisability, especially if the outliers are extreme instances of DA or AOB that would indicate more severe manifestations of these behaviours. The study might have overlooked information about the severe signs of AOB by omitting these instances. More nuanced results could be obtained by using alternative approaches to treating outliers, such as robust statistical techniques that take extreme data points into account without skewing general

results. The robustness of the analysis would also be increased by performing sensitivity analyses to evaluate how outliers impact the findings.

5.5.8 Operationalisation of Constructs

It's also possible that important constructs like DA and AOB have not been fully operationalised. Redirecting anger away from its source is known as "DA," but other forms of anger, such as direct anger or frustration, were not taken into account (Kundaragi & Kadakol, 2015; Miller et al., 2003; Ohly & Schmitt, 2015). Compared to DA alone, these types may have closer ties to WS. Likewise, the spectrum of antisocial behaviours, ranging from minor trolling to extreme harassment, might not be adequately represented by the AOB scale (Fisher, 2013; Machackova et al., 2015; Agboola, 2023). The breadth of the findings may be constrained by this limited operationalisation. Multidimensional scales that evaluate a wider variety of emotions and behaviours, such as distinct measures for direct, displaced, and suppressed anger, could be used in future studies. In a similar light, improving the AOB scale to distinguish between different forms of online hostility will improve participant representation and comprehension.

5.5.9 Technological and Tool Limitations

The subtleties of stress reactions or online behaviours might not be adequately captured by traditional self-report surveys like the ones utilised in this study (Demetriou et al., 2015). Data depth may be restricted by technological limits, such as those imposed by online survey platforms. Real-time data on participants' AOB activities throughout the day might be obtained by using digital behaviour monitoring technologies or experience sampling methods (ESM), which would increase ecological validity by documenting behaviour as it happens. These techniques would increase the findings' robustness and more accurately represent the dynamics of participants' online behaviour.

5.5.10 Limited Theoretical Frameworks

FADM, which holds that stress and frustration cause displaced aggressiveness, served as the foundation for this investigation. Although this approach is useful, it might oversimplify the intricate relationships that exist between WS, emotions, and online behaviour. Alternative theories that emphasise how stress exhausts emotional resources and may result in withdrawal or passive coping including the Conservation of Resources (COR) Theory and the Affective Events Theory (AET) may need to be examined. Strictly concentrating on one theoretical

framework might obscure other pertinent mechanisms underlying AOB. Integrating multiple theories and ideas could help future studies develop a more thorough understanding of behavioural and emotional reactions to WS.

5.6 Future Research Direction

Although this study has contributed valuable insights into the relationships between Work-related Stress (WS), Displaced Anger (DA), and Antisocial Online Behaviour (AOB), the limitations noted offer several directions for further investigation to deepen the understanding of these dynamics. Future studies should address the following considerations to build on these findings, improve methodological rigour, and offer more generalisable conclusions.

5.6.1 Alternative Emotional Reactions

As the present study primarily focussed on displaced anger as a mediator between Work-related Stress and AOB, future research could consider exploring other emotional responses and their mediating role in the work-stress AOB relationship. Anxiety or frustration, for example, might be more important in determining how individuals react to stress at work and how these feelings manifest in their activities online (Kundaragi & Kadakol, 2015; Vranjes et al., 2020). Frustration, in particular, has been linked to the Frustration-Aggression Hypothesis, which holds that people may turn to antisocial actions when they feel obstructed from accomplishing their goals (Salguero et al., 2020). In a similar light, anxiety may result in many behavioural outcomes, such as avoidance or withdrawal, which in some situations and contexts may still appear as antisocial behaviours.

Future research should examine if the association between WS and AOB is mediated by irritation, anxiety, or even other feelings like boredom or resentment. In addition to potentially expanding the scope of AOB beyond displaced anger, testing these alternative mediators would provide a more thorough knowledge of how workplace stress affects a wider spectrum of emotional reactions. Future studies can investigate whether feelings like irritability or resentment more directly moderate the association between WS and AOB by incorporating multidimensional emotional measures that capture a wider range of stress-induced emotions.

5.6.2 Longitudinal Studies

As mentioned, as the current study was cross-sectional in nature, future studies should use longitudinal designs to monitor changes in stress, anger, and AOB over time. In order to prove causality, longitudinal studies are necessary since they enable researchers to ascertain how

shifts in work-related stress impact the development of anger and ensuing online behaviours (Sadighian et al., 2025). A long-term study would, for instance, monitor how stress levels change over the course of weeks or months and see if these changes are correlated with shifts in direct and misplaced anger as well as any subsequent increases in antisocial online activity.

Furthermore, longitudinal data would make it clearer whether some stressors (like interpersonal conflict at work or an excessive workload) cause brief bursts of anger or frustration that eventually subside or whether these feelings build up and ultimately result in more substantial behavioural changes. The cumulative consequences of stress, including how long-term, chronic stress leads to emotional weariness and antisocial behaviour, might also be investigated by this kind of study.

5.6.3 Utilising a Multidimensional Approach to Stress and Anger

Within the present study, the subscales of job stress, such as workload stress and interpersonal conflict, showed a stronger correlation with overall anger than with displaced anger. This should be further investigated in future studies by looking at certain stressor types and the emotional consequences that result from them. Researchers should look into the distinct emotional reactions that various types of stress evoke rather than treating work stress as a single concept. Interpersonal confrontation at work, for example, may cause direct anger at once, immediately, but workload stress may lead to longer-term frustration or anxiety.

Furthermore, to capture a wider variety of anger types, such as direct, misplaced, and suppressed anger, future research should employ multidimensional anger measures. A more detailed knowledge of how work stress affects emotional reactions and, eventually, deviant behaviours like AOB would be provided by this method. Researchers can create more focused interventions to lessen these detrimental effects by determining which stressors are most likely to elicit particular emotional reactions.

5.6.4 Cross-cultural and Cross-Industry Comparisons

The cultural and industrial setting in which the participants were recruited placed restrictions on the current investigation. Future studies ought to investigate these connections in a wider range of businesses and cultural contexts, as coping strategies and emotional reactions can differ greatly between cultures. For instance, as previously mentioned, Matsumoto et al., (2008) discussed that in collectivist cultures, where maintaining group harmony is a central value, tend to discourage overt expressions of anger. Instead, anger may be suppressed or redirected in

ways that align with cultural expectations for relational cohesion. This cultural norm might explain the weaker correlation between work stress and displaced anger in the current study, as participants from such backgrounds may be less inclined to express anger in aggressive ways, including AOB.

In contrast, individualistic cultures, as Matsumoto et al., (2010). highlighted, encourage personal autonomy and self-expression, including the direct expression of negative emotions like anger. In such contexts, stronger relationships between WS, DA, and AOB might be observed due to fewer social constraints on emotional expressiveness. The distinction underscores the importance of cultural norms in shaping emotional responses and behavioural outcomes, suggesting that future studies should conduct cross-cultural comparisons to better understand how these dynamics vary across different societies.

In addition to cultural diversity, future research should incorporate individuals from a wider range of industries, such as manufacturing, healthcare, or education, where work stresses may differ dramatically from those in the business or IT sectors. These sectors may display distinct emotional reaction patterns and antisocial online conduct, providing a more thorough understanding of how particular work contexts influence these connections. Researchers can examine the generalisability of these findings and obtain a better understanding of how workplace dynamics impact emotional and behavioural outcomes by broadening the scope to include more diverse industries and cultural backgrounds.

5.6.5 Refining and Expanding Behavioural Measures

As mentioned, given the low reliability of the AOB scale after the removal of outliers, future research should concentrate on improving and refining the measurement of AOB to capture a wider and more accurate spectrum of online behaviours. The spectrum of antisocial actions that people engage in, from light forms of trolling to more serious acts of online harassment, may not have been sufficiently measured by the existing AOB scale. Future studies should aim to develop and validate a scale that can more precisely differentiate between these behaviours and ensure that the measurement is psychometrically robust across various groups and populations.

Furthermore, the creation of measures that assess both overt and covert forms of online aggression would shed more light on the kinds of actions people take when they're under pressure. Researchers might guarantee that the scale appropriately captures variations in the

severity of AOB by implementing item response theory (IRT) techniques, offering a more thorough comprehension of how different types of aggressiveness appear online.

5.6.6 Incorporating Technological and Behavioural Tracking

The reliance on self-report measures in the present study introduced potential biases, such as social desirability bias and response bias (Demetriou et al., 2015; Wetzel et al., 2016). Future research should incorporate technological tools, such as Experience Sampling Methods (ESM) or digital behaviour tracking, to provide a more accurate and real-time assessment of participants' online behaviours (Malek et al., 2023). ESM would lessen the need for participants' memories of their actions and experiences by enabling researchers to record participants' emotions and behaviours as they happen throughout the day, providing a richer and more immediate understanding of online activities (Malek et al., 2023).

Furthermore, objective information on participants' online activity, including trolling and other antisocial behaviours, may be provided via digital tracking techniques. By lowering the constraints of self-report data and capturing behaviours in their natural settings, these techniques would improve the study's ecological validity. A more thorough and accurate picture of how stress and anger affect online activity would be obtained by combining self-report data with advanced technological measures.

However, the use of digital tracking raises significant ethical challenges, particularly regarding privacy and consent. Researchers must ensure that participants fully understand what data is being collected, how it will be used, and how their anonymity and confidentiality will be safeguarded. Informed consent must explicitly outline these factors and guarantee participants' ability to withdraw without penalty. Adherence to strict ethical guidelines, such as those mandated by the research ethics committees, is paramount.

In the South African context, studies must also comply with legislation such as the Protection of Personal Information Act (POPIA), which governs the collection, storage, and use of personal data (*Protection of Personal Information Act*, 2013). This includes minimising the scope of data collection to only what is necessary, securing collected data, and providing clear information about how long the data will be retained (*Protection of Personal Information Act*, 2013). In conclusion, while technological tracking offers opportunities to enhance the accuracy and validity of research, its use must be guided by a strong ethical framework to ensure the privacy, autonomy, and well-being of participants.

5.6.7 Examining Unexplored Confounding Variables

As mentioned, a number of potentially significant confounding factors that could affect the associations between work stress, anger, and AOB were not taken into consideration in this study, including personality traits, coping mechanisms, and social support networks (Fida et al., 2014; Liu et al., 2022; Malik & Pichler, 2022; Rivera-Torres et al., 2013). In order to properly isolate the effects of work-related stress and anger on antisocial online behaviours, future studies should try to account for these characteristics. For instance, independent of their degree of work-related stress, those with high trait anger or neuroticism may be more likely to behave angrily online. Strong social support networks may also help people better control their stress and anger, which lowers the risk of AOB.

By incorporating these variables into future studies, researchers can gain a clearer understanding of how individual differences can moderate the relationship between stress, emotions, and behaviour. This would enable more focused interventions that consider the impact of social resources, coping mechanisms, and personality in reducing the detrimental impacts of work-related stress on online activity.

5.6.8 Integrating Multiple Theoretical Frameworks

Although the Frustration-Aggression Displacement Model (FADM) served as the foundation for this study, additional theoretical frameworks, such as Conservation of Resources (COR) Theory or Affective Events Theory (AET), could be incorporated into future research to provide a more thorough understanding of how work stress affects emotions and behaviours. According to the COR Theory, people strive to preserve resources (such as emotional energy), and when these are exhausted, they may become more prone to stress, negative emotions and negative behaviours (Holmgreen et al., 2017). AET focuses on how certain situations at work cause emotional reactions, which then affect behaviour (Ohly & Schmitt, 2015).

Future research might examine how particular workplace events cause emotional and behavioural reactions, as well as the resource depletion process that results in anger or antisocial behaviour, by integrating these frameworks. A more comprehensive knowledge of the connections between work-related stress, emotional control, and online activity would be possible with this integrated approach.

5.7 Conclusion

With a focus on evaluating the Frustration-Aggression Displacement Model (FADM) in the context of workplace stressors and digital environments, this study sought to investigate the connections among work-related stress (WS), displaced anger (DA), and antisocial online behaviour (AOB). Although this study provided insightful information, several limitations and complex results highlight the need for a more comprehensive strategy to comprehend how stress shows up in behavioural and emotional outcomes. The results emphasise the significance of individual, cultural, and environmental factors in influencing these reactions, hence challenging the FADM assumption that workplace stress directly causes displaced anger and AOB.

The complexity of emotional reactions to stress at work is highlighted by the weak and non-significant correlations found between WS, DA, and AOB, which imply that DA may not always act as a mediator for aggressive behaviours. The predominance of a female sample may have influenced these outcomes, as gender differences in coping strategies - particularly women's greater reliance on emotion-focused approaches - could have mitigated the likelihood of displaced anger. This is consistent with research from the Affective Events Theory (AET), which suggests that intense emotional responses and antisocial behaviours may be more likely to be predicted by particular workplace episodes than by overall stress. Furthermore, the Conservation of Resources (COR) Theory provides an alternative perspective, suggesting that chronic stress exhausts emotional resources, often resulting in passive coping mechanisms like withdrawal as opposed to aggressive or hateful conduct. In order to capture the various paths from workplace stress to emotional and behavioural effects, these discoveries demand a more comprehensive theoretical framework that goes beyond FADM and integrates AET, COR, and multidimensional emotional models.

The limitations of the study provide important guidelines for further investigation. The findings' generalisability is restricted by the use of a primarily female sample, especially when it comes to gender-based variations in emotional reactions. Furthermore, the cross-sectional design and the AOB scale's poor reliability after outlier removal underscore the need for more reliable measurement instruments and longitudinal studies to get a deeper comprehension of causality and temporal trends. To fully capture the complexity of stress-related behaviours, future research should include other emotional mediators such as multidimensional anger scales, frustration, and particular stress subscales. A more accurate and up-to-date view of how

workplace stress translates to online behaviours would be possible by extending the study to a variety of cultural and industrial contexts and using digital tracking or experience sampling methods (ESM).

These findings have practical ramifications for policies and workplace initiatives. Targeted emotional regulation programs and culturally aware stress management strategies that take into account gender-specific coping mechanisms might be advantageous to organisations. Employees may be able to manage stress more effectively and lower the likelihood of engaging in harmful online behaviours with the support of early intervention techniques, encouraging work cultures, and individualised training programs. For organisations hoping to create inclusive and healthy settings, it will be essential to implement policies that promote mental health and support a variety of coping mechanisms.

In conclusion, this study contributes to the understanding of workplace stress and online behaviour by challenging the traditional assumptions in FADM and promoting a more nuanced perspective that takes into account individual, contextual, and emotional nuances. Future studies that tackle these intricacies will offer a more comprehensive understanding of how workplace stress affects behavioural and emotional reactions, which will eventually direct successful interventions and improve organisational well-being in the digital era.

References

Abramson. (2022). *Burnout and Stress Are Everywhere*. American Psychological Association (APA). https://www.apa.org/monitor/2022/01/special-burnout-stress

Adams, B. G., Van De Vijver, F. J. R., & De Bruin, G. P. (2012). Identity in South Africa: Examining self-descriptions across ethnic groups. *International Journal of Intercultural Relations*, *36*(3), 377–388. https://doi.org/10.1016/j.ijintrel.2011.11.008

Agboola, O. (2023). *The Prevalence and Effects of Cyberbullying Among Adults in the United Kingdom*. https://doi.org/10.13140/RG.2.2.31125.09447

Alfain, S. N. I., Soleh, A. K., & Yamani, M. R. (2023). The Role of Patience in Coping Mental Problems: A Quranic Perspective. *Tribakti: Jurnal Pemikiran Keislaman*, *34*(2), 195–212. https://doi.org/10.33367/tribakti.v34i2.3633

Allen, J. J., & Anderson, C. A. (2017). Aggression and Violence: Definitions and Distinctions. In P. Sturmey, *The Wiley Handbook of Violence and Aggression* (1st ed., pp. 1–14). Wiley. https://doi.org/10.1002/9781119057574.whbva001

Allua, S., & Thompson, C. B. (2009). Inferential Statistics. *Air Medical Journal*, *28*(4), 168–171. https://doi.org/10.1016/j.amj.2009.04.013

Andersen, I. V. (2021). Hostility online: Flaming, trolling, and the public debate. *First Monday*. https://doi.org/10.5210/fm.v26i3.11547

Asuero, A. G., Sayago, A., & González, A. G. (2006). The Correlation Coefficient: An Overview. *Critical Reviews in Analytical Chemistry*, *36*(1), 41–59. https://doi.org/10.1080/10408340500526766

Babamiri, M., Heydari, B., Mortezapour, A., & Tamadon, T. M. (2022). Investigation of Demand–Control–Support Model and Effort–Reward Imbalance Model as Predictor of Counterproductive Work Behaviors. *Safety and Health at Work*, *13*(4), 469–474. https://doi.org/10.1016/j.shaw.2022.08.005

Baillien, E., De Cuyper, N., & De Witte, H. (2011). Job autonomy and workload as antecedents of workplace bullying: A two-wave test of Karasek's Job Demand Control Model for targets and perpetrators: Demands, control and workplace bullying. *Journal of Occupational and Organizational Psychology*, *84*(1), 191–208. https://doi.org/10.1348/096317910X508371

Bakker, A. B., & Demerouti, E. (2007). The Job Demands-Resources model: State of the art. *Journal of Managerial Psychology*, *22*(3), 309–328. https://doi.org/10.1108/02683940710733115

Bernstein, C. (1992). *Supervisor social support as a moderator of stress-strain relationships* [Master's Thesis, University of the Witwatersrand]. http://hdl.handle.net/10539/20669

Bernstein, C., & Trimm, L. (2016). The impact of workplace bullying on individual wellbeing: The moderating role of coping. *SA Journal of Human Resource Management, 15*. https://doi.org/10.4102/sajhrm.v14i1.792

Beseler, C. L., Jones, L. M., & Mitchell, K. J. (2021). Measuring Online Prosocial Behaviors in Primary School Children: Psychometric Properties of the Online Civility Scale. *Contemporary School Psychology*. https://doi.org/10.1007/s40688-021-00401-5

Bhide, A. (2007). Anger and the Mahaabhaarata. *Indian Journal of Psychiatry*, *49*(2), 140. https://doi.org/10.4103/0019-5545.33265

Biassoni, F., Balzarotti, S., Giamporcaro, M., & Ciceri, R. (2016). Hot or Cold Anger? Verbal and Vocal Expression of Anger While Driving in a Simulated Anger-Provoking Scenario. *SAGE Open*, *6*(3), 215824401665808. https://doi.org/10.1177/2158244016658084

Brakenhoff, T. B., Mitroiu, M., Keogh, R. H., Moons, K. G. M., Groenwold, R. H. H., & Van Smeden, M. (2018). Measurement error is often neglected in medical literature: A systematic review. *Journal of Clinical Epidemiology*, *98*, 89–97. https://doi.org/10.1016/j.jclinepi.2018.02.023

Breuer, J., & Elson, M. (2017). Frustration–Aggression Theory. In P. Sturmey, *The Wiley Handbook of Violence and Aggression* (1st ed., pp. 1–12). Wiley. https://doi.org/10.1002/9781119057574.whbva040

Burman, R., & Goswami, T. G. (2018). A Systematic Literature Review of Work Stress. *International Journal of Management Studies*, *V*(3(9)), 112. https://doi.org/10.18843/ijms/v5i3(9)/15

BusinessTechSA. (2018). *Burnout has been officially recognised by the WHO – here's how South Africans are struggling with it*. https://businesstech.co.za/news/business/319608/burnout-has-been-officially-recognised-by-the-who-heres-how-south-africans-are-struggling-with-it/

Calitz. (2022). BURNOUT IN THE WORKPLACE. *Obiter*, *43*(2). https://doi.org/10.17159/obiter.v43i2.14277

Cao, W., Li, P., C. Van Der Wal, R., & W. Taris, T. (2023). Leadership and Workplace Aggression: A Meta-analysis. *Journal of Business Ethics*, *186*(2), 347–367. https://doi.org/10.1007/s10551-022-05184-0

Carpenter, S. (2018). Ten Steps in Scale Development and Reporting: A Guide for Researchers. *Communication Methods and Measures*, *12*(1), 25–44. https://doi.org/10.1080/19312458.2017.1396583

Chan, T. K. H., Cheung, C. M. K., & Lee, Z. W. Y. (2021). Cyberbullying on social networking sites: A literature review and future research directions. *Information & Management*, *58*(2), 103411. https://doi.org/10.1016/j.im.2020.103411

Chavan, S., & Bhattacharya, S. (2022). Study of employees' behavior during organizational change: Effects of business theatre on Kübler-Ross model. *CARDIOMETRY*, *22*, 237–243. https://doi.org/10.18137/cardiometry.2022.22.237243

Cheng, J., Danescu-Niculescu-Mizil, C., & Leskovec, J. (2021). Antisocial Behavior in Online Discussion Communities. *Proceedings of the International AAAI Conference on Web and Social Media*, *9*(1), 61–70. https://doi.org/10.1609/icwsm.v9i1.14583

Clarke. (2023). *Burnout is rife. It's also preventable*. Human Leaders. https://www.wearehumanleaders.com/latestarticles/burnoutreport2023

Cowling, N. (2024a). *Digital population in South Africa as of January 2024* [Statistica]. https://www.statista.com/statistics/685134/south-africa-digital-population/

Cowling, N. (2024b). Most popular reasons for internet users in South Africa to use social media as of 3rd quarter 2023 [Statistica]. *Internet› Social Media & User-Generated Content*. https://www.statista.com/statistics/1316431/social-media-usage-reasons-in-south-africa/

Cowling, N. (2024c). Social media in South Africa—Statistics & facts [Statistica]. *Internet› Social Media & User-Generated Content*. https://www.statista.com/topics/9923/social-media-in-south-africa/#topicOverview

Cyber Crimes Act No. 19 of 2020, 44651, Parliament, 672 (2020). https://www.gov.za/sites/default/files/gcis_document/202106/44651gon324.pdf

Deffenbacher, J. L. (2011). Cognitive-Behavioral Conceptualization and Treatment of Anger. *Cognitive and Behavioral Practice*, *18*(2), 212–221. https://doi.org/10.1016/j.cbpra.2009.12.004

Deloitte. (2024). *Code of Ethics and Professional Conduct*. Deloitte. https://www2.deloitte.com/content/dam/Deloitte/sg/Documents/about-deloitte/sea-about-code-of-ethics.pdf

Demerouti, E., & Bakker, A. B. (2011). The Job Demands–Resources model: Challenges for future research. *SA Journal of Industrial Psychology*, *37*(2), 9 pages. https://doi.org/10.4102/sajip.v37i2.974

Demetriou, C., Ozer, B. U., & Essau, C. A. (2015). Self-Report Questionnaires. In R. L. Cautin & S. O. Lilienfeld (Eds.), *The Encyclopedia of Clinical Psychology* (1st ed., pp. 1–6). Wiley. https://doi.org/10.1002/9781118625392.wbecp507

Denson, T. F., Pedersen, W. C., & Miller, N. (2006). The displaced aggression questionnaire. *Journal of Personality and Social Psychology*, *90*(6), 1032–1051. https://doi.org/10.1037/0022-3514.90.6.1032

Diener, E. (1979). Deindividuation, self-awareness, and disinhibition. *Journal of Personality and Social Psychology*, *37*(7), 1160–1171. https://doi.org/10.1037/0022-3514.37.7.1160

Douglas, D. M. (2016). Doxing: A conceptual analysis. *Ethics and Information Technology*, *18*(3), 199–210. https://doi.org/10.1007/s10676-016-9406-0

Fernandez, E., & Malley-Morrison, K. (2013). Gender-Inclusive and Gender-Informed Treatment of Anger. In E. Fernandez (Ed.), *Treatments for Anger in Specific Populations* (pp. 213–235). Oxford University Press. https://doi.org/10.1093/med:psych/9780199914661.003.0012

Fida, R., Paciello, M., Barbaranelli, C., Tramontano, C., & Fontaine, R. G. (2014). The role of irritability in the relation between job stressors, emotional reactivity, and counterproductive work behaviour. *European Journal of Work and Organizational Psychology*, *23*(1), 31–47. https://doi.org/10.1080/1359432X.2012.713550

Field, A. (2013). *Discovering statistics using IBM SPSS statistics* (4th edition). Sage.

Fisher, E. J. (2013). From Cyber Bullying to Cyber Coping: The Misuse of Mobile Technology and Social Media and Their Effects on People's Lives. *Business and Economic Research*, *3*(2), 127. https://doi.org/10.5296/ber.v3i2.4176

Fisher, M. J., & Marshall, A. P. (2009). Understanding descriptive statistics. *Australian Critical Care*, *22*(2), 93–97. https://doi.org/10.1016/j.aucc.2008.11.003

Garfinkel, S. N., Zorab, E., Navaratnam, N., Engels, M., Mallorquí-Bagué, N., Minati, L., Dowell, N. G., Brosschot, J. F., Thayer, J. F., & Critchley, H. D. (2016). Anger in brain and body: The neural and physiological perturbation of decision-making by emotion. *Social Cognitive and Affective Neuroscience*, *11*(1), 150–158. https://doi.org/10.1093/scan/nsv099

Gewabe, L. (2022). *Seeing Flames? How To Avoid Year-End Burnout*. Health-e. https://health-e.org.za/2022/11/11/seeing-flames-how-to-avoid-year-end-burnout/

Gianakos, I. (2002). Issues of Anger in the Workplace: Do Gender and Gender Role Matter? *The Career Development Quarterly*, *51*(2), 155–171. https://doi.org/10.1002/j.2161-0045.2002.tb00597.x

Gilbert-Ouimet, M., Trudel, X., Brisson, C., Milot, A., & Vézina, M. (2014). Adverse effects of psychosocial work factors on blood pressure: Systematic review of studies on demand–control–support and effort–reward imbalance models. *Scandinavian Journal of Work, Environment & Health*, *40*(2), 109–132. https://doi.org/10.5271/sjweh.3390

Global Views on cyberbullying. (2018, June 28). *Ipsos*. https://www.ipsos.com/en-za/global-views-cyberbullying

Goh, Y. W., Sawang, S., & Oei, T. P. S. (2010). The Revised Transactional Model (RTM) of Occupational Stress and Coping: An Improved Process Approach. *The Australian and New Zealand Journal of Organisational Psychology*, *3*, 13–20. https://doi.org/10.1375/ajop.3.1.13

Gower, T., Pham, J., Jouriles, E. N., Rosenfield, D., & Bowen, H. J. (2022). Cognitive biases in perceptions of posttraumatic growth: A systematic review and meta-analysis. *Clinical Psychology Review*, *94*, 102159. https://doi.org/10.1016/j.cpr.2022.102159

Gunzler, D., Chen, T., Wu, P., & Zhang, H. (2013). Introduction to mediation analysis with structural equation modeling. *Shanghai Archives of Psychiatry*, *25*(6), 390–394. https://doi.org/10.3969/j.issn.1002-0829.2013.06.009

Hart, C. M., Ritchie, T. D., Hepper, E. G., & Gebauer, J. E. (2015). The Balanced Inventory of Desirable Responding Short Form (BIDR-16). *Sage Open*, *5*(4), 2158244015621113. https://doi.org/10.1177/2158244015621113

Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (Second edition). Guilford Press.

Hershcovis, M. S., Turner, N., Barling, J., Arnold, K. A., Dupré, K. E., Inness, M., LeBlanc, M. M., & Sivanathan, N. (2007). Predicting workplace aggression: A meta-analysis. *Journal of Applied Psychology*, *92*(1), 228–238. https://doi.org/10.1037/0021-9010.92.1.228

Hibbert, D. B. (2007). Systematic errors in analytical measurement results. *Journal of Chromatography A, 1158*(1–2), 25–32. https://doi.org/10.1016/j.chroma.2007.03.021

Hinduja, S., & Patchin, J. W. (2024). *Bullying beyond the schoolyard: Preventing and responding to cyberbullying* (Third edition). Corwin.

Holmgreen, L., Tirone, V., Gerhart, J., & Hobfoll, S. E. (2017). Conservation of Resources Theory: Resource Caravans and Passageways in Health Contexts. In C. L. Cooper &

J. C. Quick (Eds.), *The Handbook of Stress and Health* (1st ed., pp. 443–457). Wiley. https://doi.org/10.1002/9781118993811.ch27

Houge Mackenzie, S., & Kerr, J. H. (2013). Stress and emotions at work: An adventure tourism guide's experiences. *Tourism Management*, *36*, 3–14. https://doi.org/10.1016/j.tourman.2012.10.018

Hulbert-Williams, N. J., Morrison, V., Wilkinson, C., & Neal, R. D. (2013). Investigating the cognitive precursors of emotional response to cancer stress: Re-testing Lazarus's transactional model. *British Journal of Health Psychology*, *18*(1), 97–121. https://doi.org/10.1111/j.2044-8287.2012.02082.x

Ilie, A., Penney, L. M., Ispas, D., & Iliescu, D. (2012). The Role of Trait Anger in the Relationship between Stressors and Counterproductive Work Behaviors: Convergent Findings from Multiple Studies and Methodologies. *Applied Psychology*, *61*(3), 415–436. https://doi.org/10.1111/j.1464-0597.2011.00476.x

Jes Bella, Dr. K. M. (2023). EXPLORING THE IMPACT OF WORKPLACE RELATIONSHIPS AND EMPLOYEE JOB SATISFACTION. *International Journal of Scientific Research in Modern Science and Technology*, *2*(8), 55–62. https://doi.org/10.59828/ijsrmst.v2i8.136

Jick, T. D., & Mitz, L. F. (1985). Sex Differences in Work Stress. *The Academy of Management Review*, *10*(3), 408. https://doi.org/10.2307/258124

Johnson, P. R., & Indvik, J. (2001). Rudeness at Work: Impulse over Restraint. *Public Personnel Management*, *30*(4), 457–465. https://doi.org/10.1177/009102600103000403

Joinson, A. N. (2007). Disinhibition and the Internet. In *Psychology and the Internet* (pp. 75–92). Elsevier. https://doi.org/10.1016/B978-012369425-6/50023-0

Jones, L. M., & Mitchell, K. J. (2016). Defining and measuring youth digital citizenship. *New Media & Society*, *18*(9), 2063–2079. https://doi.org/10.1177/1461444815577797

Julia, N. (2024). *Stress in the Workplace Statistics (2024 Update)*. CFAH. https://cfah.org/workplace-stress-statistics/#references

Kallner, A. (2018). Formulas. In *Laboratory Statistics* (pp. 1–140). Elsevier. https://doi.org/10.1016/B978-0-12-814348-3.00001-0

Kang, N. G., Kuo, T., & Grossklags, J. (2022). Closing Pandora's Box on Naver: Toward Ending Cyber Harassment. *Proceedings of the International AAAI Conference on Web and Social Media*, *16*, 465–476. https://doi.org/10.1609/icwsm.v16i1.19307

Kheswa, J. G. (2019). Factors and effects of work-related stress and burnout on the well-being of social workers in the Eastern Cape province, South Africa. *SA Journal of Industrial Psychology*, *45*. https://doi.org/10.4102/sajip.v45i0.1661

Kowalski, R. M., Toth, A., & Morgan, M. (2018). Bullying and cyberbullying in adulthood and the workplace. *The Journal of Social Psychology*, *158*(1), 64–81. https://doi.org/10.1080/00224545.2017.1302402

Kring, A. M. (2000). Gender and anger. In A. H. Fischer (Ed.), *Gender and Emotion* (1st ed., pp. 211–231). Cambridge University Press. https://doi.org/10.1017/CBO9780511628191.011

Kundaragi, P. B., & Kadakol, A. M. (2015). Work stress of employee: A literature review. *International Journal of Advance Research and Innovative Ideas in Education, 1*(3), 18–23.

Kwak, D.-H. (Austin), Ma, X., & Kim, S. (2021). When does social desirability become a problem? Detection and reduction of social desirability bias in information systems research. *Information & Management, 58*(7), 103500. https://doi.org/10.1016/j.im.2021.103500

Kweon, B.-S., Ulrich, R. S., Walker, V. D., & Tassinary, L. G. (2008). Anger and Stress: The Role of Landscape Posters in an Office Setting. *Environment and Behavior*, *40*(3), 355–381. https://doi.org/10.1177/0013916506298797

Lagios, C., Restubog, S. L. D., Garcia, P. R. J. M., He, Y., & Caesens, G. (2023). A trickle-out model of organizational dehumanization and displaced aggression. *Journal of Vocational Behavior, 141*, 103826. https://doi.org/10.1016/j.jvb.2022.103826

Lee, H. Y., Jang, M. H., Jeong, Y. M., Sok, S. R., & Kim, A. S. (2021). Mediating Effects of Anger Expression in the Relationship of Work Stress with Burnout among Hospital Nurses Depending on Career Experience. *Journal of Nursing Scholarship*, *53*(2), 227–236. https://doi.org/10.1111/jnu.12627

Lindebaum, D., & Geddes, D. (2016). The place and role of (moral) anger in organizational behavior studies. *Journal of Organizational Behavior, 37*(5), 738–757. https://doi.org/10.1002/job.2065

Liu, M., Wu, B., Li, F., Wang, X., & Geng, F. (2022). Does mindfulness reduce trolling? The relationship between trait mindfulness and online trolling: The mediating role of anger rumination and the moderating role of online disinhibition. *Journal of Affective Disorders, 301*, 36–43. https://doi.org/10.1016/j.jad.2022.01.023

Lord, S & Nosanchuk, T. A. (1977). On turning the other cheek: Non violence in Christianity and social psychology. *Peace Research*, *9*(4), 153-164.

Machackova, H., Dedkova, L., & Mezulanikova, K. (2015). Brief report: The bystander effect in cyberbullying incidents. *Journal of Adolescence*, *43*(1), 96–99. https://doi.org/10.1016/j.adolescence.2015.05.010

Malek, S., Hearn, D., Fahy, T., Tully, J., & Exworthy, T. (2023). Legal and human rights issues in the use of electronic monitoring (using GPS 'tracking' technology) in forensic mental health settings in the UK. *Medicine, Science and the Law*, *63*(4), 309–315. https://doi.org/10.1177/00258024231174820

Malik, O. F., & Pichler, S. (2022). Linking Perceived Organizational Politics to Workplace Cyberbullying Perpetration: The Role of Anger and Fear. *Journal of Business Ethics*, *186*(2), 445–463. https://doi.org/10.1007/s10551-022-05234-7

March, E., Grieve, R., Wagstaff, D., & Slocum, A. (2020). Exploring anger as a moderator of narcissism and antisocial behaviour on tinder. *Personality and Individual Differences*, *161*, 109961. https://doi.org/10.1016/j.paid.2020.109961

Marengo, N., Borraccino, A., Charrier, L., Berchialla, P., Dalmasso, P., Caputo, M., & Lemma, P. (2021). Cyberbullying and problematic social media use: An insight into the positive role of social support in adolescents—data from the Health Behaviour in School-aged Children study in Italy. *Public Health*, *199*, 46–50. https://doi.org/10.1016/j.puhe.2021.08.010

Marshall, G., & Jonker, L. (2011). An introduction to inferential statistics: A review and practical guide. *Radiography*, *17*(1), e1–e6. https://doi.org/10.1016/j.radi.2009.12.006

Matlala, L. (2019). IPSOS study reveals SA has highest incidents of cyberbullying. *SABC News - Breaking News, Special Reports, World, Business, Sport Coverage of All South African Current Events. Africa\'s News Leader.* https://www.sabcnews.com/sabcnews/ipsos-study-reveals-sa-has-highest-incidents-of-cyberbullying/

Matsumoto, D., Seung Hee Yoo, & Fontaine, J. (2008). Mapping Expressive Differences Around the World: The Relationship Between Emotional Display Rules and Individualism Versus Collectivism. *Journal of Cross-Cultural Psychology*, *39*(1), 55–74. https://doi.org/10.1177/0022022107311854

Matsumoto, D., Yoo, S. H., & Chung, J. (2010). The Expression of Anger Across Cultures. In M. Potegal, G. Stemmler, & C. Spielberger (Eds.), *International Handbook of Anger* (pp. 125–137). Springer New York. https://doi.org/10.1007/978-0-387-89676-2_8

Mattern, J., Tarafdar, M., Klein, S., & Schellhammer, S. (2024). Thriving in a bruising job: How high achieving IT professionals can cope with occupational demands. *Information Systems Journal*, *34*(6), 1902–1934. https://doi.org/10.1111/isj.12513

McBride, K. A., MacMillan, F., George, E. S., & Steiner, G. Z. (2019). The Use of Mixed Methods in Research. In P. Liamputtong (Ed.), *Handbook of Research Methods in Health Social Sciences* (pp. 695–713). Springer Singapore. https://doi.org/10.1007/978-981-10-5251-4_97

McKinsey & Company. (2023). *Our Code of Conduct*. https://www.mckinsey.com/~/media/mckinsey/about%20us/code%20of%20conduct/mckinsey-our-code-of-conduct-december-2023.pdf

Mcleod, S. (2024). *Mixed Methods Research Guide With Examples*. https://doi.org/10.13140/RG.2.2.31329.93286

McLinton, S. S., & Dollard, M. F. (2010). Work stress and driving anger in Japan. *Accident Analysis & Prevention*, *42*(1), 174–181. https://doi.org/10.1016/j.aap.2009.07.016

Miller, N., Pedersen, W. C., Earleywine, M., & Pollock, V. E. (2003). A Theoretical Model of Triggered Displaced Aggression. *Personality and Social Psychology Review*, *7*(1), 75–97. https://doi.org/10.1207/S15327957PSPR0701_5

Mosley, E., & Laborde, S. (2016). Performing under Pressure. In *Performance Psychology* (pp. 291–314). Elsevier. https://doi.org/10.1016/B978-0-12-803377-7.00018-1

Nelson, C. (2024). "A public orgy of misogyny": Gender, power, media, and legal spectacle in Depp v Heard. *Feminist Media Studies*, 1–17. https://doi.org/10.1080/14680777.2024.2304225

Nixon, C. (2014). Current perspectives: The impact of cyberbullying on adolescent health. *Adolescent Health, Medicine and Therapeutics*, 143. https://doi.org/10.2147/AHMT.S36456

O'Driscoll, A. (2021). 20+ Online Hate Crime Statistics and Facts for 2021. *Comparitech*.

Ohly, S., & Schmitt, A. (2015). What Makes Us Enthusiastic, Angry, Feeling at Rest or Worried? Development and Validation of an Affective Work Events Taxonomy Using Concept Mapping Methodology. *Journal of Business and Psychology*, *30*(1), 15–35. https://doi.org/10.1007/s10869-013-9328-3

Olynick, J., & Li, H. Z. (2020). Organizational Culture and Its Relationship with Employee Stress, Enjoyment of Work and Productivity. *International Journal of Psychological Studies*, *12*(2), 14. https://doi.org/10.5539/ijps.v12n2p14

Panhwar, A. H., Ansari, S., & Shah, A. A. (2017). Post-positivism: An effective paradigm for social and educational research. *International Research Journal of Arts and Humanities*, *45*(45), 253–259.

Pelfrene, E., Vlerick, P., Mak, R. P., De Smet, P., Kornitzer, M., & De Backer, G. (2001). Scale reliability and validity of the Karasek 'Job Demand-Control-Support' model in the Belstress study. *Work & Stress*, *15*(4), 297–313. https://doi.org/10.1080/02678370110086399

Pendell, R. (2022). Stressed, Sad, and Anxious: A Snapshot of the Global Workforce. *Harvard Business Review*. https://hbr.org/2022/06/stressed-sad-and-anxious-a-snapshot-of-the-global-workforce

Penney, L. M., & Spector, P. E. (2005). Job stress, incivility, and counterproductive work behavior (CWB): The moderating role of negative affectivity. *Journal of Organizational Behavior*, *26*(7), 777–796. https://doi.org/10.1002/job.336

Protection from Harassment Act 17 of 2011, 34818, Parliament, 558 (2011). https://www.justice.gov.za/legislation/acts/2011-017.pdf

Protection of Personal Information Act, 2013, Bill N0. 4 of 2013, Parliament, 581 (2013). https://www.gov.za/sites/default/files/gcis_document/201409/3706726-11act4of2013popi.pdf

PwC. (2024). *PwC's Code of Conduct*. PwC. https://www.pwc.com/m1/en/about-us/2024/document/pwc-code-of-conduct-2024.pdf

Rabenu, E., Yaniv, E., & Elizur, D. (2017). The Relationship between Psychological Capital, Coping with Stress, Well-Being, and Performance. *Current Psychology*, *36*(4), 875–887. https://doi.org/10.1007/s12144-016-9477-4

Reio, T. G. (2016). Nonexperimental research: Strengths, weaknesses and issues of precision. *European Journal of Training and Development*, *40*(8/9), 676–690. https://doi.org/10.1108/EJTD-07-2015-0058

Republic of South Africa. (1995). *Labour Relations Act No. 66 of 1995*. Government Gazette (No. 1877). https://www.gov.za/sites/default/files/gcis_document/201409/act66-1995labourrelations.pdf

Rivera-Torres, P., Araque-Padilla, R., & Montero-Simó, M. (2013). Job Stress Across Gender: The Importance of Emotional and Intellectual Demands and Social Support in Women. *International Journal of Environmental Research and Public Health*, *10*(1), 375–389. https://doi.org/10.3390/ijerph10010375

Sadighian, M. J., Hakam, N., Shaw, N. M., & Breyer, B. N. (2025). Longitudinal study: Pros and cons, study design, and classic examples. In *Translational Urology* (pp. 159–163). Elsevier. https://doi.org/10.1016/B978-0-323-90186-4.00052-3

Salguero, J. M., García-Sancho, E., Ramos-Cejudo, J., & Kannis-Dymand, L. (2020). Individual differences in anger and displaced aggression: The role of metacognitive beliefs and anger rumination. *Aggressive Behavior*, *46*(2), 162–169. https://doi.org/10.1002/ab.21878

Salvagioni, D. A. J., Melanda, F. N., Mesas, A. E., González, A. D., Gabani, F. L., & Andrade, S. M. D. (2017). Physical, psychological and occupational consequences of job burnout: A systematic review of prospective studies. *PLOS ONE*, *12*(10), e0185781. https://doi.org/10.1371/journal.pone.0185781

Sanchez-Danday, A. S. Q. (2023). Cyberbullying among College Students: A Case Study. *European Modern Studies Journal*, *7*(3), 190–197. https://doi.org/10.59573/emsj.7(3).2023.19

Sarah Israel. (2023). 7 Types of Social Media and How Each Can Benefit Your Business [Hootsuite]. *7 Types of Social Media Platforms*. https://blog.hootsuite.com/types-of-social-media/

Schodt, K. B., Quiroz, S. I., Wheeler, B., Hall, D. L., & Silva, Y. N. (2021). Cyberbullying and Mental Health in Adults: The Moderating Role of Social Media Use and Gender. *Frontiers in Psychiatry*, *12*, 674298. https://doi.org/10.3389/fpsyt.2021.674298

Seo, Y. N., Leather, P., & Coyne, I. (2012). South Korean culture and history: The implications for workplace bullying. *Aggression and Violent Behavior*, *17*(5), 419–422. https://doi.org/10.1016/j.avb.2012.05.003

Sharma, G. (2017). Pros and cons of different sampling techniques. *International Journal of Applied Research*, *3*(7), 749–752.

Sidonie Gaucher. (2024). Social media fuels hostility against Muslims in the UK. *La Croix International*. https://international.la-croix.com/world/social-media-fuels-hostility-against-muslims-in-the-uk

Smith, L. A., Roman, A., Dollard, M. F., Winefield, A. H., & Siegrist, J. (2005). Effort–reward imbalance at work: The effects of work stress on anger and cardiovascular disease symptoms in a community sample. *Stress and Health*, *21*(2), 113–128. https://doi.org/10.1002/smi.1045

Snyder, P., Doerfler, P., Kanich, C., & McCoy, D. (2017). Fifteen minutes of unwanted fame: Detecting and characterizing doxing. *Proceedings of the 2017 Internet Measurement Conference*, 432–444. https://doi.org/10.1145/3131365.3131385

Spector, P. E., Gray, C. E., & Rosen, C. C. (2023). Are Biasing Factors Idiosyncratic to Measures? A Comparison of Interpersonal Conflict, Organizational Constraints, and Workload. *Journal of Business and Psychology*, *38*(5), 983–1002. https://doi.org/10.1007/s10869-022-09838-8

Spector, P. E., & Jex, S. M. (1998). Development of four self-report measures of job stressors and strain: Interpersonal Conflict at Work Scale, Organizational Constraints Scale, Quantitative Workload Inventory, and Physical Symptoms Inventory. *Journal of Occupational Health Psychology*, *3*(4), 356–367. https://doi.org/10.1037/1076-8998.3.4.356

Sun, X., Li, B. J., Zhang, H., & Zhang, G. (2023). Social media use for coping with stress and psychological adjustment: A transactional model of stress and coping perspective. *Frontiers in Psychology*, *14*, 1140312. https://doi.org/10.3389/fpsyg.2023.1140312

Szabo, S., Tache, Y., & Somogyi, A. (2012). The legacy of Hans Selye and the origins of stress research: A retrospective 75 years after his landmark brief "Letter" to the Editor [#] of *Nature*. *Stress*, *15*(5), 472–478. https://doi.org/10.3109/10253890.2012.710919

Taherdoost, H. (2016). Sampling Methods in Research Methodology; How to Choose a Sampling Technique for Research. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3205035

Taylor, S. E., Klein, L. C., Lewis, B. P., Gruenewald, T. L., Gurung, R. A. R., & Updegraff, J. A. (2000). Biobehavioral responses to stress in females: Tend-and-befriend, not fight-or-flight. *Psychological Review*, *107*(3), 411–429. https://doi.org/10.1037/0033-295X.107.3.411

The Digital Law Company. (2024). *The Digital Law Company by Emma Sadleir*. https://www.thedigitallawco.com/

Tran, K. T., Nguyen, P. V., Dang, T. T. U., & Ton, T. N. B. (2018). The Impacts of the High-Quality Workplace Relationships on Job Performance: A Perspective on Staff Nurses in Vietnam. *Behavioral Sciences*, *8*(12), 109. https://doi.org/10.3390/bs8120109

Universari, N., & Harsono, M. (2021). Antecedents and Consequences of Work Stress Behavior. *Economics and Business Solutions Journal*, *5*(1), 46. https://doi.org/10.26623/ebsj.v5i1.3362

Valeri, L., & VanderWeele, T. J. (2013). Mediation analysis allowing for exposure–mediator interactions and causal interpretation: Theoretical assumptions and implementation with SAS and SPSS macros. *Psychological Methods*, *18*(2), 137–150. https://doi.org/10.1037/a0031034

Van Den Broeck, A., Van Ruysseveldt, J., Vanbelle, E., & De Witte, H. (2013). The Job Demands–Resources Model: Overview and Suggestions for Future Research. In A. B. Bakker (Ed.), *Advances in Positive Organizational Psychology* (Vol. 1, pp. 83–105). Emerald Group Publishing Limited. https://doi.org/10.1108/S2046-410X(2013)0000001007

Venkataramani, V., Labianca, G. (Joe), & Grosser, T. (2013). Positive and negative workplace relationships, social satisfaction, and organizational attachment. *Journal of Applied Psychology*, *98*(6), 1028–1039. https://doi.org/10.1037/a0034090

Vollrath, M. (2001). Personality and stress. *Scandinavian Journal of Psychology*, *42*(4), 335–347. https://doi.org/10.1111/1467-9450.00245

Vranjes, I., Baillien, E., Erreygers, S., Vandebosch, H., & De Witte, H. (2020). You Wouldn't Like Me When I'm Angry: A Daily Diary Study of Displaced Online Aggression in Dual-Earner Couples. *Applied Psychology*, *70*(4), 1463–1491. https://doi.org/10.1111/apps.12283

Wang, R.-R., & Wang, Y. (2021). Using the Kübler-Ross Model of Grief with Post-Traumatic Stress Disorder (PTSD): An Analysis of Manchester by the Sea. *Metathesis: Journal of English Language, Literature, and Teaching*, *5*(1), 79. https://doi.org/10.31002/metathesis.v5i1.3700

Wang, X., & Cheng, Z. (2020). Cross-Sectional Studies. *Chest*, *158*(1), S65–S71. https://doi.org/10.1016/j.chest.2020.03.012

Wetzel, E., Böhnke, J. R., & Brown, A. (2016). Response Biases. In E. Wetzel, J. R. Böhnke, & A. Brown, *The ITC International Handbook of Testing and Assessment* (pp. 349–363). Oxford University Press. https://doi.org/10.1093/med:psych/9780199356942.003.0024

Wolfers, L. N., & Utz, S. (2022). Social media use, stress, and coping. *Current Opinion in Psychology*, *45*, 101305. https://doi.org/10.1016/j.copsyc.2022.101305

Yeung, J & Bae, G. (2022). As Korean employees return to the office, so does 'gapjil' workplace harassment. *CNN*. https://edition.cnn.com/2022/07/04/asia/south-korea-gapjil-harassment-survey-intl-hnk/index.html

Zhu, C., Huang, S., Evans, R., & Zhang, W. (2021). Cyberbullying Among Adolescents and Children: A Comprehensive Review of the Global Situation, Risk Factors, and Preventive Measures. *Frontiers in Public Health*, *9*, 634909. https://doi.org/10.3389/fpubh.2021.634909

Zimmer, F., Scheibe, K., Stock, M., & Stock, W. G. (2019). Echo chambers and filter bubbles of fake news in social media. Man-made or produced by algorithms. *In 8th Annual Arts, Humanities, Social Sciences & Education Conference.*, 1–22.

Appendices

Appendix A: Demographic Questionnaire - Organisational

1. Please indicate your gender
   - □ Female
   - □ Male
   - □ Other, please specify _____
2. Please indicate your race
   - □ Black
   - □ White
   - □ Coloured
   - □ Indian
   - □ Asian
   - □ Other, please specify
3. Please indicate your home language
   - □ English
   - □ Afrikaans
   - □ isiZulu
   - □ isiXhosa
   - □ isiNdebele
   - □ Sesotho
   - □ Sepedi
   - □ Setswana
   - □ siSwati
   - □ Tshivenda
   - □ Xitsonga
   - □ Other, please specify _____
4. Please indicate your age
   - □ 18-28 years old
   - □ 29-38 years old
   - □ 39-48 years old
   - □ 49-58 years old
   - □ 58+ years old

5. Please indicate your marital status
    - Single
    - Married
    - Divorced
    - Widowed
    - Separated
6. Please indicate your job level
    - Entry level
    - Intermediate
    - Junior management
    - Middle management
    - Upper management
    - Executive
    - Other, please specify _____
7. Please indicate your job sector
    - Information technology
    - Accounting and Finance
    - Business, Consulting, and Management
    - Education
    - Hospitality
    - Other, please specify _____

Appendix B: Demographic Questionnaire – Wits Plus Sample

1. Please indicate your gender
    - Female
    - Male
    - Other, please specify _____
2. Please indicate your race
    - Black
    - White
    - Coloured
    - Indian
    - Asian
    - Other, please specify _____
3. Please indicate your home language
    - English
    - Afrikaans
    - isiZulu
    - isiXhosa
    - isiNdebele
    - Sesotho
    - Sepedi
    - Setswana
    - siSwati
    - Tshivenda
    - Xitsonga
    - Other, please specify _____
4. Please indicate your age
    - 18-28 years old
    - 29-38 years old
    - 39-48 years old
    - 49-58 years old
    - 58+ years old
5. Please indicate your marital status

- Single
- Married
- Divorced
- Widowed
- Separated

6. Please indicate your job level
   - Entry level
   - Intermediate
   - Junior management
   - Middle management
   - Upper management
   - Executive
   - Other, please specify _____
7. Please indicate your job sector
   - Information technology
   - Accounting and Finance
   - Business, Consulting, and Management
   - Education
   - Hospitality
   - Other, please specify _____
8. Please fill in your student number

   _____

Appendix C: Work Stress Scale

Instructions: Please answer the following questions which aim to assess your experience of stress at work.

Interpersonal Conflict at Work Scale

	Less than once per month or never	Once or twice per month	Once or twice per week	Once or twice per day	Several times per day
1. How often do you get into arguments with others at work?					
2. How often do other people yell at you at work?					
3. How often are people rude to you at work?					
4. How often do other people do horrible things to you at work?					

Organisational Constraints Scale, OCS

How often do you find it difficult or impossible to do your job because of ...?	Less than once per month or never	Once or twice per month	Once or twice per week	Once or twice per day	Several times per day
1. Poor equipment or supplies.					
2. Organisational rules and procedures.					
3. Other employees (colleagues).					
4. Other employees (subordinates)					
5. Your supervisor/boss/manager.					
6. Lack of equipment or supplies.					
7. Inadequate training.					
8. Interruptions by other people.					

9. Lack of necessary information about what to do or how to do it.					
10. Conflicting job demands.					
11. Inadequate help from others (your colleagues/team).					
12. Inadequate help from others (your subordinates)					
13. Being given incorrect instructions.					

Quantitative Workload Inventory

	Less than once per month or never	Once or twice per month	Once or twice per week	Once or twice per day	Several times per day
1. Do you feel your job requires you to work too fast?					
2. Do you feel your job requires you to work too hard?					
3. How often does your job leave you with little time to get things done?					
4. Do you feel that you have too much work to do?					
5. Do you feel that your work tasks are too difficult and you therefore cannot do them well enough?					

On a scale of 1 to 5, **overall,** how angry or upset do you feel about your experiences OF work stress as described in the above questions? Please make a tick in the boxes below.

1	2	3	4	5

1 = Not at all angry or upset

2 = Slightly angry or upset

3 = Neutral

4 = Very angry or upset

5 = Extremely angry or upset

Appendix D: Displaced Anger Scale

(Note for Reader: the word 'displaced' was removed in the surveys that were completed by participants). Instructions: Please answer the following questions to assess your current general emotions and feelings of anger.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. When someone or something makes me angry, I am likely to take it out on another person					
2. When feeling bad, I take it out on others.					
3. When angry, I have taken it out on people close to me.					
4. Sometimes I get upset with other people even though that person is not the cause of my anger or frustration.					
5. I take my anger out on innocent others.					
6. When things don't go the way I plan, I take out my frustration on the first person I come into contact with.					
7. If someone at work made me angry I would likely vent my anger on another person.					
8. Sometimes I get so upset by work that I become hostile towards others outside of work.					
9. When I am angry, I don't care who I lash out at.					
10. If I have had a hard day at work I'm likely to make sure everyone knows about it.					

Appendix E: Antisocial Online Behaviour (AOB) Scale

Note to Reader: In the survey given to the participants, the Antisocial Online Behaviour scale was labelled as an Online Behaviour Scale without the word 'Antisocial' in the title. Furthermore, the dichotomous items that aim to measure whether the action was done anonymously or not were not part of the scale's total score. They were included for post analyses of the extent to which individuals engage in such behaviours anonymously or in their own names. Lastly, questions 17, 18, and 19 were also for post-analyses and hence were not included in the total scores.

Online Behaviour Scale

Instructions: Please answer all of the following questions which aim to assess your engagement in online behaviour.

	Less than once per month or never	Once or twice per month	Once or twice per week	Once or twice per day	Several times per day
1. Have you ever posted negative comments in response to a post, message, image, or video you saw online?					

	Yes	**No**
Have you done this using an Anonymous account?		
Have you done this using an account registered in your name?		

	Strongly Agree	Moderately Agree	Neutral	Moderately Disagree	Strongly Disagree
2. When I'm online, I try to make sure that I do not sound mean.					

	Yes	**No**
Have you done this using an Anonymous account?		
Have you done this using an account registered in your own name?		

	Less than once per month or never	Once or twice per month	Once or twice per week	Once or twice per day	Several times per day
3. Have you ever liked negative comments in response to a post, message, image, or video that you saw online?					

	Yes	**No**
Have you done this using an Anonymous account?		
Have you done this using an account registered in your own name?		

	Less than once per month or never	Once or twice per month	Once or twice per week	Once or twice per day	Several times per day
4. Have you ever shared shameful/disrespectful comments, pictures or videos of others online?					

	Yes	**No**
Have you done this using an Anonymous account?		

Have you done this using an account registered in your own name?		

	Strongly Agree	Moderately Agree	Neutral	Moderately Disagree	Strongly Disagree
5. My favorite apps and websites are ones where people are nice to each other.					

	Strongly Agree	Moderately Agree	Neutral	Moderately Disagree	Strongly Disagree
6. When I'm online, I try to make sure that any pictures I post will not embarrass anyone.					

	Yes	**No**
Have you done this using an Anonymous account?		
Have you done this using an account registered in your own name?		

	Less than once per month or never	Once or twice per month	Once or twice per week	Once or twice per day	Several times per day
7. Have you ever shared negative posts, images, or videos with friends or in group chats?					

	Yes	**No**
Have you done this using an Anonymous account?		
Have you done this using an account registered in your own name?		

	Strongly Agree	Moderately Agree	Neutral	Moderately Disagree	Strongly Disagree
8. When I am online, I try to help end arguments or dramas.					

	Yes	**No**
Have you done this using an Anonymous account?		
Have you done this using an account registered in your own name?		

	Less than once per month or never	Once or twice per month	Once or twice per week	Once or twice per day	Several times per day
9. Have you said negative things to someone directly online?					

	Yes	**No**
Have you done this using an Anonymous account?		
Have you done this using an account registered in your own name?		

	Strongly Agree	Moderately Agree	Neutral	Moderately Disagree	Strongly Disagree
10. I try to make sure that the things I say online will not be something I regret.					

	Yes	**No**
Have you done this using an Anonymous account?		
Have you done this using an account registered in your own name?		

	Less than once per month or never	Once or twice per month	Once or twice per week	Once or twice per day	Several times per day
11. Have you said negative things to or about someone to another person online?					

	Yes	**No**
Have you done this using an Anonymous account?		
Have you done this using an account registered in your own name?		

	Less than once per month or never	Once or twice per month	Once or twice per week	Once or twice per day	Several times per day
12. Have you insulted someone online?					

	Yes	**No**
Have you done this using an Anonymous account?		
Have you done this using an account registered in your own name?		

	Less than once per month or never	Once or twice per month	Once or twice per week	Once or twice per day	Several times per day
13. Have you gossiped about someone online?					

	Yes	**No**
Have you done this using an Anonymous account?		
Have you done this using an account registered in your own name?		

	Strongly Agree	Moderately Agree	Neutral	Moderately Disagree	Strongly Disagree
14. I use the internet to share things I am good at or proud of.					

	Yes	**No**
Have you done this using an Anonymous account?		

Have you done this using an account registered in your own name?		

	Strongly Agree	Moderately Agree	Neutral	Moderately Disagree	Strongly Disagree
15. I am careful about how I say things online, so they do not come across the wrong way.					

	Yes	**No**
Have you done this using an Anonymous account?		
Have you done this using an account registered in your own name?		

	Less than once per month or never	Once or twice per month	Once or twice per week	Once or twice per day	Several times per day
16. Have you deliberately ignored or excluded someone online?					

	Yes	**No**
Have you done this using an Anonymous account?		
Have you done this using an account registered in your own name?		

	Less than once per month or never	Once or twice per month	Once or twice per week	Once or twice per day	Several times per day
17. How often do you go online on average where you engage in any of the above behaviours?					

	Less than once per month or never	Once or twice per month	Once or twice per week	Once or twice per day	Several times per day
18. How much time do you spend online on average where you engage in any of the above behaviours?					

19. On what social media platforms have you done 1 or more of the above

Please indicate (you can tick more than one)

- ☐ Instagram
- ☐ TikTok
- ☐ X
- ☐ Facebook
- ☐ WhatsApp
- ☐ Telegram
- ☐ Other, please specify _____

Appendix F: Permission Letter to Organisations

Psychology
School of Human & Community Development
University of the Witwatersrand
Private Bag 3, Wits, 2050
Tel: 011 717 4503 Fax: 011 717 4559

Dear Manager,

My name is Shabina Arif Muhammad Arif, and I am currently enrolled in the Master of Art Program at the University of Witwatersrand. To obtain a master's degree in Organisational Psychology, I am required to complete a research project. To carry out this research, I am writing to request your assistance in having access to your employees in order to invite them to participate in the study. This research project aims to gain a comprehensive understanding of employees' experiences of work-related stress, how this makes them feel, and how it relates to their online behaviour. This will be done by exploring the correlation between these variables. Furthermore, the study will assess gender variations in these processes.

Participation in this study will involve inviting employees to complete an online questionnaire, which will take approximately 30 minutes to complete. The link for the online questionnaire will be open for 2 to 3 weeks. Hence, employees will be required to submit it during that duration. Participation in this study is completely voluntary. Employees who choose to engage in this research will not get any benefits; conversely, if they choose not to participate, they will not suffer any consequences. The study is considered to be a low-risk study. Although the study is low risk, the study might, in rare instances invoke negative feelings in some participants. To address these risks, a Participant Information Sheet (PIS) will inform each participant that should they require debriefing, this can be obtained free of charge by psychologists at the Emthonjeni Centre at the University of the Witwatersrand. Furthermore, contact details of the administrator at the Emthonjeni Centre of the University of the Witwatersrand will be provided to book a free consultation at a time suitable to those participants who desire the service.

The study will ensure the anonymity and confidentiality of all employees and the organisation. No personally identifiable information, such as employee names, staff numbers, ID numbers, or the name of the company, will be requested from employees in the questionnaire. Additionally, as only group results will be published, the report will not in any way associate any data obtained with a specific employee or the organisation. As a result, neither the name of the organisation nor its employees' personally identifiable information will be disclosed in the study report Thus, ensuring that both the participants and the organisation remain anonymous. The name of the organisation will only be known to myself and the supervisor. Lastly, all the collected data will only be accessible by myself and the supervisor, ensuring safety and confidentiality.

If employees choose to participate in this study, they will be requested to complete an online questionnaire. Employees will be able to complete the online questionnaire through the distribution of an electronically encrypted email link – no IP addresses will be recorded. Before participants can complete the questionnaire they will be required to fill in an Inform Consent Form. The form will require participants to indicate via a tick box (yes/no) if they agree to participate in this study. Furthermore, completion and submission of the questionnaire will act as informed consent to participate in this study. The overall generalised research findings of the study will be summarised and sent to the employees and the organisation upon request. The research will also be placed in the University's online repository (WIRedSpace) and findings may be used for future research online publications or conference proceedings. However, as mentioned, findings are only reported as general trends and therefore employees' responses will remain completely anonymous.

Research conducted in this domain in South Africa is limited, and thus this study may provide valuable insights and contributions regarding the studied variables. It would be greatly appreciated if you could consider allowing me to recruit participants from your organisation to conduct this research. For any questions or concerns, please do not hesitate to contact me or my supervisor.

Thank you for your time and consideration. Sincerely,

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For any information regarding the ethics of this study, you may contact Shaun Schoeman from the university's Human Research Ethics Committee (HREC).

Shaun.schoeman@wits.ac.za
+27 (11) 717 1408

Appendix G: Permission Letter to Faculty Registrar and Course-Coordinator

Psychology
School of Human & Community Development
University of the Witwatersrand
Private Bag 3, Wits, 2050
Tel: 011 717 4503 Fax: 011 717 4559

Dear Sir/Madam

My name is Shabina Arif Muhammad Arif, and I am currently enrolled in the Master of Art Program at the University of Witwatersrand. To obtain a master's degree in Organisational Psychology, I am required to complete a research project. To carry out this research, I am writing to request your assistance in having access to Wits Plus students in order to invite them to participate in the study. For students to be invited to participate in this research, they need to be currently employed in a South African organisation. This research project aims to gain a comprehensive understanding of employees' experiences of work-related stress, how this makes them feel, and how it relates to their online behaviour. This will be done by exploring the correlation between these variables. Furthermore, the study will assess gender variations in these processes.

Participation in this study will involve employees completing an online questionnaire, which will take approximately 20 to 30 minutes to complete. The link for the online questionnaire will be open for 2 to 3 weeks. Hence, employees will be required to submit it during that duration. Participation in this study is completely voluntary. Students who choose not to participate will not be disadvantaged. However, students who choose to participate in this research will be rewarded with 1% towards their grade as a form of research participation. However, it is important to note that if Wits Plus students do not wish to participate in the present study, they can choose from many other research projects to get the 1%. Thus there is no pressure on them to participate in this study to gain the incentive. In addition, the study is considered to be a relatively low-risk study. Although the study is low risk, the study might, in rare instances invoke negative feelings in some participants. To address these risks, a Participant Information Sheet (PIS) will inform each participant that should they require debriefing, this can be obtained free of charge by psychologists at the Emthonjeni Centre at the

University of the Witwatersrand. Furthermore, contact details of the administrator at the Emthonjeni Centre of the University of the Witwatersrand will be provided to book a free consultation at a time suitable to those participants who desire the service.

The study will ensure the anonymity and confidentiality of all students. No personally identifiable information, such as student names, or ID numbers, will be collected, thus ensuring the anonymity of participants. However, student numbers will be collected to credit students for participation. Once the student numbers have been recorded and submitted to the course coordinator, they will be deleted. Additionally, as only group results will be published, the report will not in any way associate any data obtained with a specific student. Furthermore, participants will not be asked to provide the name of the organisation in which they work, and the names of the organisations will not be reported As a result, anonymity and confidentiality of both students and the organisation they work for will be preserved. Lastly, all the collected data will only be accessible by myself and the supervisor, ensuring the safety and confidentiality of the data.

If students choose to participate in this study, they will be requested to complete an online questionnaire. Students will be able to complete the online questionnaire through the distribution of an electronically encrypted email link to student email addresses - no IP addresses will be recorded. Before participants can complete the questionnaire they will be required to fill in an Inform Consent Form. The form will require participants to indicate via a tick box (yes/no) if they agree to participate in this study. Furthermore, completion and submission of the questionnaire will act as informed consent to participate in this study. The overall generalised research findings of the study will be summarised and sent to the participants upon request. The research will be placed in the University's online repository (WIRedSpace) and findings may be used for future online research publications or conference proceedings. However, as mentioned, findings are only reported as general trends and therefore students' responses will remain completely anonymous.

Research conducted in this domain in South Africa is limited, and thus this study may provide valuable insights and contributions regarding the studied variables (work-related stress, displaced anger, and antisocial online behaviour). It would be greatly appreciated if you could consider allowing me to recruit participants at Wits Plus to conduct this research. For any questions or concerns, please do not hesitate to contact me or my supervisor.

Thank you for your time and consideration.

Sincerely,

Shabina Arif Muhammad Arif Professor Colleen Bernstein (Supervisor)

shabinamuhammad@gmail.com Colleen.Bernstein@wits.ac.za

+27 (63) 983 7420 +27 (11) 717 4538

For any information regarding the ethics of this study, you may contact Shaun Schoeman from the university's Human Research Ethics Committee (HREC).

Shaun.schoeman@wits.ac.za

+27 (11) 717 1408

Appendix H: Participation Information Sheet – Organisational Sample

Psychology
School of Human & Community Development
University of the Witwatersrand
Private Bag 3, Wits, 2050
Tel: 011 717 4503 Fax: 011 717 4559

Dear Participant

My name is Shabina Arif Muhammad Arif, and I am currently enrolled in the Master of Art Program at the University of Witwatersrand. To obtain a Master's degree in Organisational Psychology, I am required to complete a research project. To carry out this research, I would like to invite you to participate in this study.

This research project aims to gain a comprehensive understanding of your experiences of work-related stress, how this makes you feel, and how it relates to your online behaviour. This will be done by exploring the correlation between these variables. Furthermore, the study will assess gender variations in these processes.

You will be able to complete the online questionnaire through the distribution of an electronically encrypted email link – no IP addresses will be recorded. The completion of the questionnaire will take approximately 20 to 30 minutes. The link for the online questionnaire will be open for 2 to 3 weeks. Hence, please ensure that your completed questionnaire is submitted online within that duration. Participation in this study is completely voluntary. The study is considered to be a relatively low-risk study. Although the study is low risk, the study might, in rare instances invoke negative feelings in some participants. To address these risks, A Participant Information Sheet (PIS) will inform each participant that should they require debriefing, this can be obtained free of charge by psychologists at the Emthonjeni Centre at the University of the Witwatersrand. Furthermore, contact details of the administrator at the Emthonjeni Centre of the University of the Witwatersrand will be provided to book a free consultation at a time suitable to those participants who desire the service.

Furthermore, the study will ensure that all ethical considerations are met. These include the process of debriefing, anonymity, confidentiality, informed consent, and the right to withdraw.

You will have the right to withdraw from the study at any point up until you have submitted the online questionnaire. This is because all the questionnaires will be submitted anonymously, hence it is not possible to remove an individual set of responses once it has been submitted.

Before you can complete the questionnaire you will be required to fill in an Inform Consent Form. The form will require participants to indicate via a tick box (yes/no). Furthermore, completion and return of the questionnaire will be taken as informed consent of your participation and for the use of your responses for statistical analysis and research purposes only. Responses will remain strictly confidential and anonymous at all times. No personally identifiable information, such as employee names, staff numbers, or ID numbers will be requested from you in the questionnaire. The name of the organisation for which you work will not be asked for, and your organisation will not be identified by name at any point. No one at your organisation will know if you choose to participate or not. Additionally, only group results will be published, hence, the report will not in any way associate any data obtained with you. Responses to the questionnaire will only be seen by myself and the supervisor. Lastly, all the collected data will only be accessible by myself and the supervisor, ensuring the safety and confidentiality of the data.

Since the questionnaire is anonymous, no individual feedback can be given. However, we will be able to provide you with a summary of the overall research findings upon request. Furthermore, the research will be placed in the University's online repository (WIRedSpace) and findings may be used for future research publications or conference proceedings. However, as mentioned, findings are only reported as general trends and therefore your responses will remain completely anonymous.

For any questions or concerns, please do not hesitate to contact me or my supervisor (Contact details are provided below).

Thank you for your time and consideration. Your participation would be greatly appreciated.

Sincerely,

Shabina Arif Muhammad Arif

shabinamuhammad@gmail.com

+27 (63) 983 7420

Professor Colleen Bernstein (Supervisor)

Colleen.Bernstein@wits.ac.za

+27 (11) 717 4538

For any information regarding the ethics of this study, you may contact Shaun Schoeman from the university's Human Research Ethics Committee (HREC).

Shaun.schoeman@wits.ac.za

+27 (11) 717 1408

If you experience any negative feelings and require debriefing you will be provided with a free consultation with a psychologist. To book a free consultation you may contact Ms Paballo Lepota (Administrator) at the Emthonjeni Centre of the University of the Witwatersrand.

pabello.lepota@wits.ac.za

+27 (11) 717 4513

Appendix I: Participation Information Sheet – Wits Plus Sample

Psychology
School of Human & Community Development
University of the Witwatersrand
Private Bag 3, Wits, 2050
Tel: 011 717 4503 Fax: 011 717 4559

Dear Participant

My name is Shabina Arif Muhammad Arif, and I am currently enrolled in the Master of Art Program at the University of Witwatersrand. To obtain a Master's degree in Organisational Psychology, I am required to complete a research project. To carry out this research, I would like to invite you to participate in this study. Please note that to participate in this study, you need to be currently employed in a South African organisation.

This research project aims to gain a comprehensive understanding of your experiences of work-related stress, how this makes you feel, and how it relates to online behaviour. This will be done by exploring the correlation between these variables. Furthermore, the study will assess gender variations in these processes.

You will be able to complete the online questionnaire through the distribution of an electronically encrypted email link – no IP addresses will be recorded. The completion of the questionnaire will take approximately 20 to 30 minutes. The link for the online questionnaire will be open for 2 to 3 weeks. Hence, please ensure that your completed questionnaire is submitted online within that duration. Participation in this study is completely voluntary. Should you choose to participate in this study, you will receive 1% towards your research participation mark. It is important to note that if you do not wish to participate in the present study, you can choose from many other research projects to get the 1%. Thus there is no pressure on them to participate in this study to gain the incentive.

The study is considered to be a relatively low-risk study. Although the study is low risk, the study might, in rare instances invoke negative feelings in some participants. To address these risks, A Participant Information Sheet (PIS) will inform each participant that should they require debriefing, this can be obtained free of charge by psychologists at the Emthonjeni

Centre at the University of the Witwatersrand. Furthermore, contact details of the administrator at the Emthonjeni Centre of the University of the Witwatersrand will be provided to book a free consultation at a time suitable to those participants who desire the service.

Furthermore, the study will ensure that all ethical considerations are met. These include the process of debriefing, anonymity, confidentiality, informed consent, and the right to withdraw. You will have the right to withdraw from the study at any point up until you have submitted the online questionnaire. This is because all the questionnaires will be submitted anonymously, hence it is not possible to remove an individual set of responses once it has been submitted.

Before you can complete the questionnaire you will be required to fill in an Inform Consent Form. The form will require participants to indicate via a tick box (yes/no). Furthermore, completion and return of the questionnaire will be taken as informed consent of your participation and for the use of your responses for statistical analysis and research purposes only. Responses will remain strictly confidential and anonymous at all times. No personally identifiable information, such as your name or ID numbers will be requested from you in the questionnaire. However, student numbers will be collected to give you credit for research participation. Once the student numbers have been recorded and submitted to the course coordinator, they will be deleted – so there will be no way your responses can be aligned to your student number. Additionally, as only group results will be published, the report will not in any way associate any data obtained with you. Furthermore, you will not be asked to provide the name of the organisation in which you work, and the names of the organisations will not be reported. As a result, your anonymity and confidentiality will be preserved. Responses to the questionnaire will only be seen by myself and the supervisor. Lastly, all the collected data will only be accessible by myself and the supervisor, ensuring the safety and confidentiality of the data.

Since the questionnaire is anonymous, no individual feedback can be given. However, we will be able to provide you with a summary of the overall research findings upon request. Furthermore, the research will be placed in the University's online repository (WIRedSpace) and findings may be used for future research publications or conference proceedings. However, as mentioned, findings are only reported as general trends and therefore your responses will remain completely anonymous.

For any questions or concerns, please do not hesitate to contact me or my supervisor (Contact details are provided below).

Thank you for your time and consideration. Your participation would be greatly appreciated.

Sincerely,

Shabina Arif Muhammad Arif

shabinamuhammad@gmail.com

+27 (63) 983 7420

Professor Colleen Bernstein (Supervisor)

Colleen.Bernstein@wits.ac.za

+27 (11) 717 4538

For any information regarding the ethics of this study, you may contact Shaun Schoeman from the university's Human Research Ethics Committee (HREC).

Shaun.schoeman@wits.ac.za

+27 (11) 717 1408

If you experience any negative feelings and require debriefing you will be provided with a free consultation with a psychologist. To book a free consultation you may contact Ms Paballo Lepota (Administrator) at the Emthonjeni Centre of the University of the Witwatersrand.

pabello.lepota@wits.ac.za

+27 (11) 717 4513

Appendix J: Email Invitation – Organisational Sample

Dear Participant

My name is Shabina Arif Muhammad Arif, and I am currently enrolled in the Master of Art Program at the University of Witwatersrand. To obtain a master's degree in Organisational Psychology, I am required to complete a research project. To carry out this research, I would like to invite you to participate in this study. This research project aims to gain a comprehensive understanding of your experiences of work-related stress, how this makes you feel, and how it relates to online behaviour. This will be done by exploring the correlation between these variables. Furthermore, the study will assess gender variations in these processes.

Participation in the study involves completing an online questionnaire. The demographic section of the questionnaire will require you to answer a few biographical questions. The remaining sections of the questionnaire will include a work-stress scale, a scale that measures emotions, and an online behaviour scale. Participation in this study is completely voluntary. The survey should take you approximately 20 to 30 minutes to complete. There will be no benefits or drawbacks to you if you decide to take part in the research study or not. Attached to this email and included in the online survey is an information sheet which will supply more in-depth details about the study and how your responses will be completely anonymous and confidential. In addition, the survey also includes a consent form if you do decide to participate.

For any questions or concerns, please do not hesitate to contact me or my supervisor (Contact details are provided below).

Thank you for your time and consideration. Your participation would be greatly appreciated.

Sincerely,

Shabina Arif Muhammad Arif

shabinamuhammad@gmail.com

+27 (63) 983 7420

Professor Colleen Bernstein (Supervisor)

Colleen.Bernstein@wits.ac.za

+27 (11) 717 4538

For any information regarding the ethics of this study, you may contact Shaun Schoeman from the university's Human Research Ethics Committee (HREC).

Shaun.schoeman@wits.ac.za

+27 (11) 717 1408

Appendix K: Email Invitation – Wits Plus Sample

Dear Participant

My name is Shabina Arif Muhammad Arif, and I am currently enrolled in the Master of Art Program at the University of Witwatersrand. To obtain a master's degree in Organisational Psychology, I am required to complete a research project. This research project aims to gain a comprehensive understanding of your experiences of work-related stress, how this makes you feel, and how it relates to online behaviour. This will be done by exploring the correlation between these variables. Furthermore, the study will assess gender variations in these processes. To carry out this research, I would like to invite you to participate in this study. Please note that to participate, you need to be currently employed in a South African organisation.

Participation in the study involves completing an online questionnaire. The demographic section of the questionnaire will require you to answer a few biographical questions. The remaining sections of the questionnaire will include a work-stress scale, a scale that measures emotions, and an online behaviour scale. Participation in this study is completely voluntary. The survey should take you approximately 20 to 30 minutes to complete. You will not be disadvantaged if you choose not to participate. However, should you choose to participate, you will be rewarded with 1% as part of your research participation mark. Attached to this email and included in the online survey is an information sheet which will supply more in-depth details about the study and how your responses will be completely anonymous and confidential. In addition, the survey also includes a consent form if you do decide to participate.

For any questions or concerns, please do not hesitate to contact me or my supervisor (Contact details are provided below).

Thank you for your time and consideration. Your participation would be greatly appreciated.

Sincerely,

Shabina Arif Muhammad Arif

shabinamuhammad@gmail.com

+27 (63) 983 7420

Professor Colleen Bernstein (Supervisor)

Colleen.Bernstein@wits.ac.za

+27 (11) 717 4538

For any information regarding the ethics of this study, you may contact Shaun Schoeman from the university's Human Research Ethics Committee (HREC).

Shaun.schoeman@wits.ac.za

+27 (11) 717 1408

Appendix L: Informed Consent

I voluntarily agree to participate in this research study and have read and fully understand all the points outlined below.

- ☐ Yes
- ☐ No

- I am aware that participation is completely voluntary and that, even if I decide to participate now, I can back out at any moment until the last question and the whole survey is submitted online.
- The nature and goal of the study have been communicated to me in writing, and I have had the chance to ask questions regarding it.
- I am aware that taking part in this activity requires answering questions about my experiences of work stress, displaced anger, and antisocial online behaviour.
- I am aware that taking part in this research will not directly benefit me.
- I am aware that all of the data I submit for this study will be kept confidential.
- I am aware that my identity will be kept anonymous in any report based on the findings of this study. To do this, no personal information that may be used to identify a specific person or organisation will be recorded.
- I understand that the results of this study will be compiled into a research report, and may be used for future journal articles, and/or conference proceedings; however, my involvement will remain anonymous since all findings are presented as broad trends, making it impossible to link any particular response to me.
- I am aware that the research's data may be utilised for publications and conference proceedings, and that it will be made available in the Wits online research repository. All information used and kept in this way will be completely anonymous.
- I am aware that I can get in touch with the researchers at any time to ask questions or to get more information.

Appendix M: Ethics Clearance Certificate

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

SCHOOL OF HUMAN AND COMMUNITY DEVELOPMENT ETHICS COMMITTEE
CONSTITUTED UNDER THE UNIVERSITY HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER: MAORG-24-09**
PROJECT TITLE:	Work Stress, Displaced Anger, Gender, and Anti-Social Online Behaviour (AOB).
INVESTIGATOR	Muhammad Arif Shabina
SCHOOL/DEPARTMENT OF INVESTIGATOR	SHCD/Psychology
DATE CONSIDERED	08 July 2024
DECISION OF THE COMMITTEE	Approved unconditionally
RISK LEVEL	Minimal Risk
EXPIRY DATE	31 December 2026

ISSUE DATE OF CERTIFICATE 26 July 2024 **CHAIRPERSON** Aline Ferreira Correia
(Prof. Aline Ferreira Correia)

cc: Prof. Colleen Bernstein (Supervisor)

DECLARATION OF INVESTIGATOR

To be completed in duplicate and **ONE COPY** returned to the Chairperson of the School/Department ethics committee.

I/we fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure be contemplated from the research procedure as approved, I/we undertake to submit an amendment of the protocol to the Committee.

Shabina

Signature **Date** 26 / 07 / 2024

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

Appendix N: Certificate of Permission from Registrar

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

OFFICE OF THE DEPUTY REGISTRAR

11 August 2024

Shabina Arif Muhammad
Student Number (2118504)
Master of Arts by Coursework and Research Report
School of Human and Community Development

TO WHOM IT MAY CONCERN

"Work Stress, Displaced Anger, Gender, and Anti-Social Online Behaviour (AOB).

This letter serves to confirm that the above project has received permission to be conducted on University premises, and/or involving staff and/or students of the University as research participants. In undertaking this research, you agree to abide by all University regulations for conducting research on campus and to respect participants' rights to withdraw from participation at any time.

If you are conducting research on certain student cohorts, year groups or courses within specific Schools and within the teaching term, permission must be sought from Heads of School or individual academics.

Ethical clearance has been obtained. (Protocol number: MAORG-24-09)

Research Expiration: (31 December 2026)

Nicoleen Potgieter
University Deputy Registrar

Private Bag 3, WITS, 2050, South Africa | **T** +27 11 717 1204/8 | **E** nicoleen.potgieter@wits.ac.za | www.wits.ac.za
IYUNIVESITHI YASEWITWATERSRAND | YUNIVESITHI YA WITWATERSRAND

Appendix 0: Frequencies and Percentages of Anonymous Behaviours

The following tables present the frequencies and percentages of participants who reported engaging in negative behaviour using an anonymous account.

Table O1

Frequencies and Percentages of Anonymous Behaviour for Item 1

		Frequency (n)	**Percentage (%)**
Valid	1	7	4.8
	2	138	95.2
	Total	145	100.0

Note. Valid 1 indicates “Yes” (behaviour was performed anonymously and Valid 2 indicates “No” (behaviour was not performed anonymously)

Table O2

Frequencies and Percentages of Anonymous Behaviour for Item 2

		Frequency (n)	**Percentage (%)**
Valid	1	6	4.1
	2	139	95.9
	Total	145	100.0

Note. Valid 1 indicates “Yes” (behaviour was performed anonymously and Valid 2 indicates “No” (behaviour was not performed anonymously)

Table 03

Frequencies and Percentages of Anonymous Behaviour for Item 3

		Frequency (n)	**Percentage (%)**
Valid	1	2	1.4
	2	143	98.6
	Total	145	100.0

Note. Valid 1 indicates “Yes” (behaviour was performed anonymously and Valid 2 indicates “No” (behaviour was not performed anonymously)

Table 04

Frequencies and Percentages of Anonymous Behaviour for Item 4

		Frequency (n)	**Percentage (%)**
Valid	1	4	2.8
	2	141	97.2
	Total	145	100.0

Note. Valid 1 indicates “Yes” (behaviour was performed anonymously and Valid 2 indicates “No” (behaviour was not performed anonymously)

Table 05

Frequencies and Percentages of Anonymous Behaviour for Item 5

		Frequency (n)	**Percentage (%)**
Valid	1	6	4.1
	2	139	95.9
	Total	145	100.0

Note. Valid 1 indicates “Yes” (behaviour was performed anonymously and Valid 2 indicates “No” (behaviour was not performed anonymously)

Table 06

Frequencies and Percentages of Anonymous Behaviour for Item 6

		Frequency (n)	**Percentage (%)**
Valid	1	3	2.1
	2	142	97.9
	Total	145	100.0

Note. Valid 1 indicates “Yes” (behaviour was performed anonymously and Valid 2 indicates “No” (behaviour was not performed anonymously)

Table 07

Frequencies and Percentages of Anonymous Behaviour for Item 7

		Frequency (n)	**Percentage (%)**
Valid	1	3	2.1
	2	142	97.9
	Total	145	100.0

Note. Valid 1 indicates “Yes” (behaviour was performed anonymously and Valid 2 indicates “No” (behaviour was not performed anonymously)

Table 08

Frequencies and Percentages of Anonymous Behaviour for Item 8

		Frequency (n)	**Percentage (%)**
Valid	1	3	2.1
	2	142	97.9
	Total	145	100.0

Note. Valid 1 indicates “Yes” (behaviour was performed anonymously and Valid 2 indicates “No” (behaviour was not performed anonymously)

Table 09

Frequencies and Percentages of Anonymous Behaviour for Item 9

		Frequency (n)	**Percentage (%)**
Valid	1	5	3.4
	2	140	96.6
	Total	145	100.0

Note. Valid 1 indicates “Yes” (behaviour was performed anonymously and Valid 2 indicates “No” (behaviour was not performed anonymously)

Appendix P: Assumption Testing

Normality Assumption - Figure 1.1.

Histogram depicting the distribution of Work-related Stress

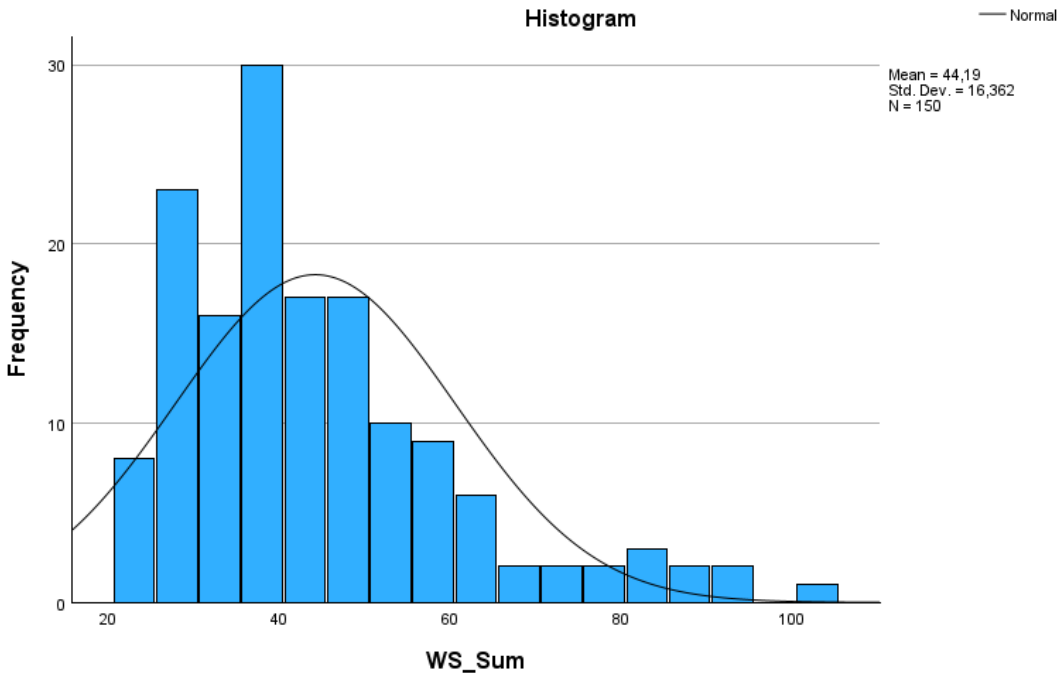


Figure 1.2.

Histogram depicting the distribution of Displaced Anger

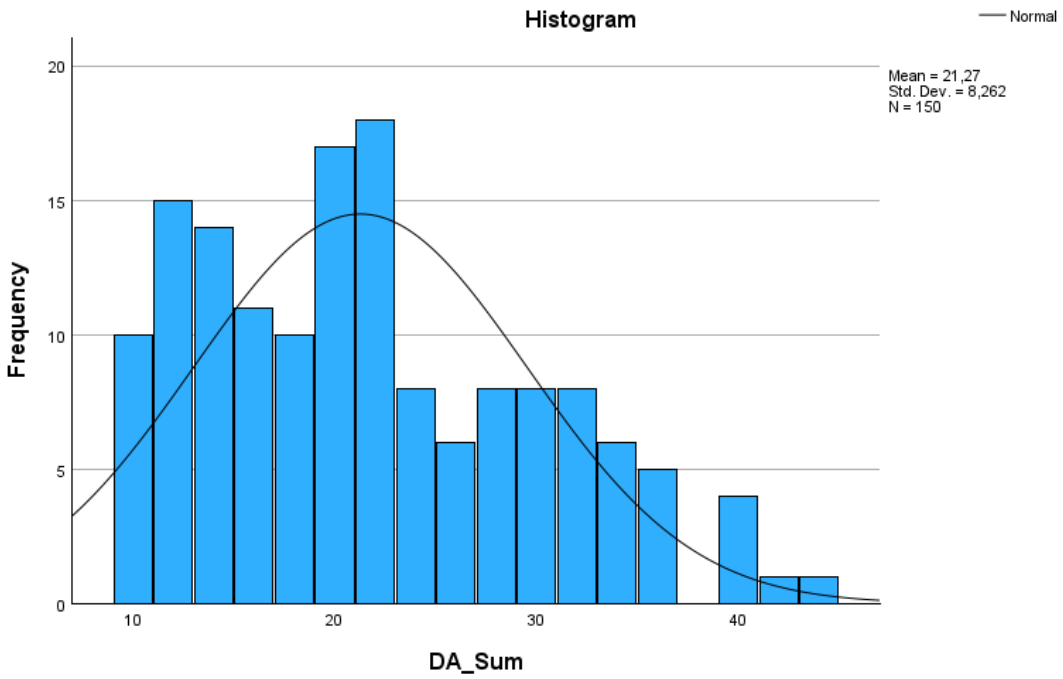
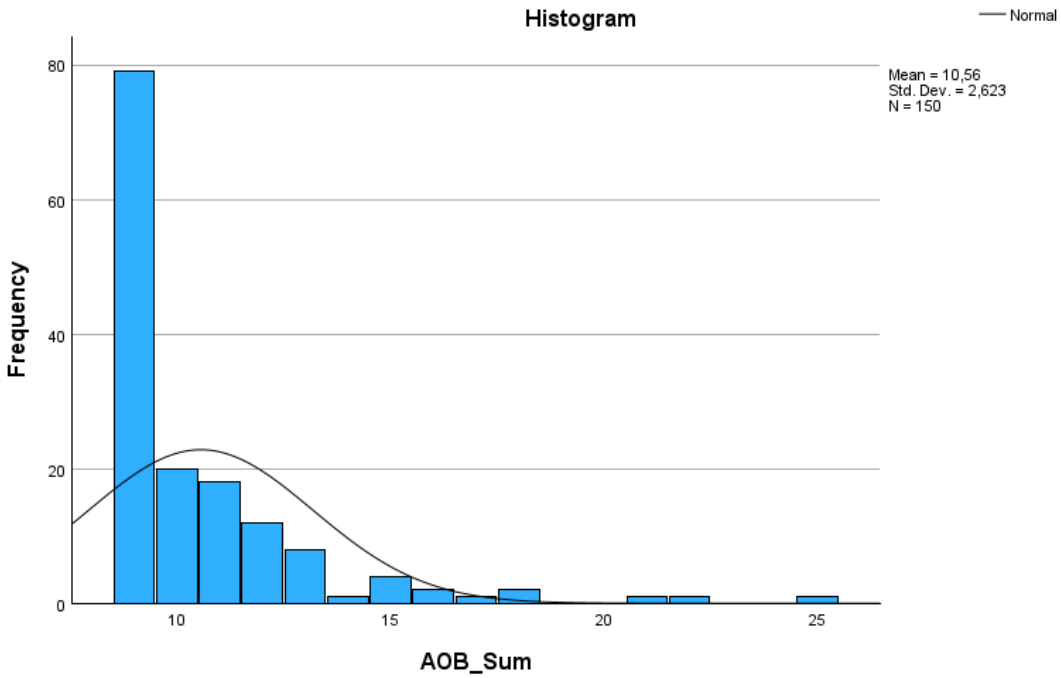


Figure 1.3.

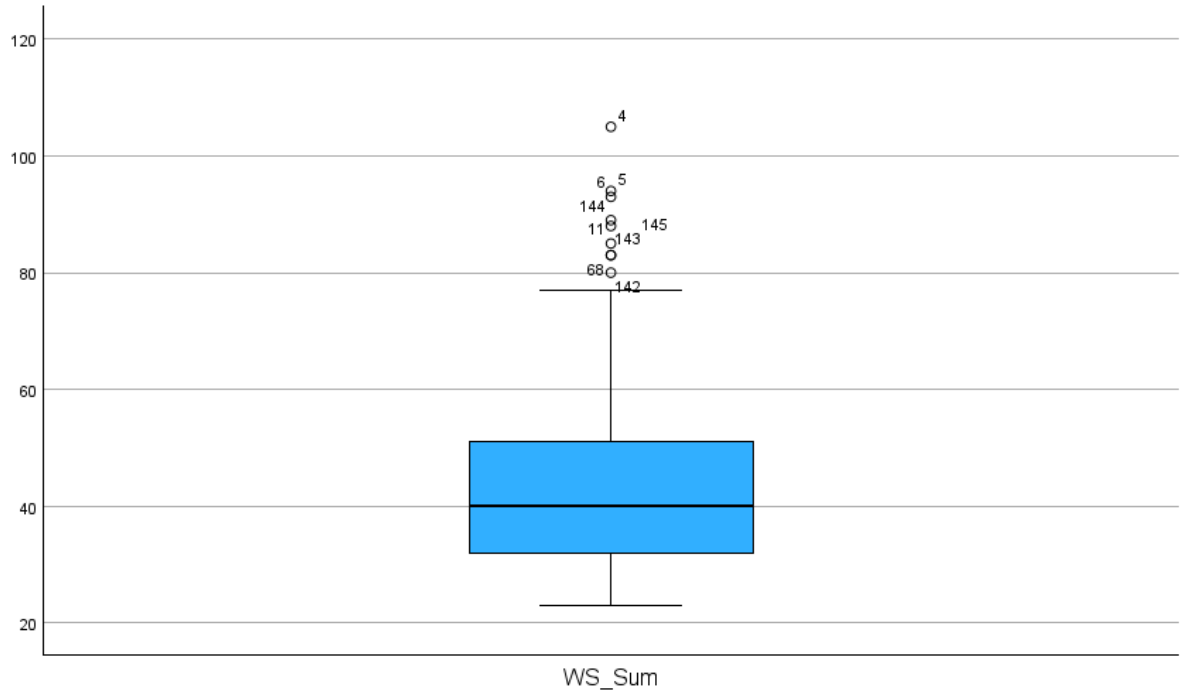
Histogram depicting the distribution of Antisocial Online Behaviour



Initial Outliers Assumption

Figure 2.1.

Box-plot depicting significant outliers - Work-related Stress



*Note: Significant outliers are marked with an **

Figure 2.2.

Box-plot depicting significant outliers – Displaced Anger

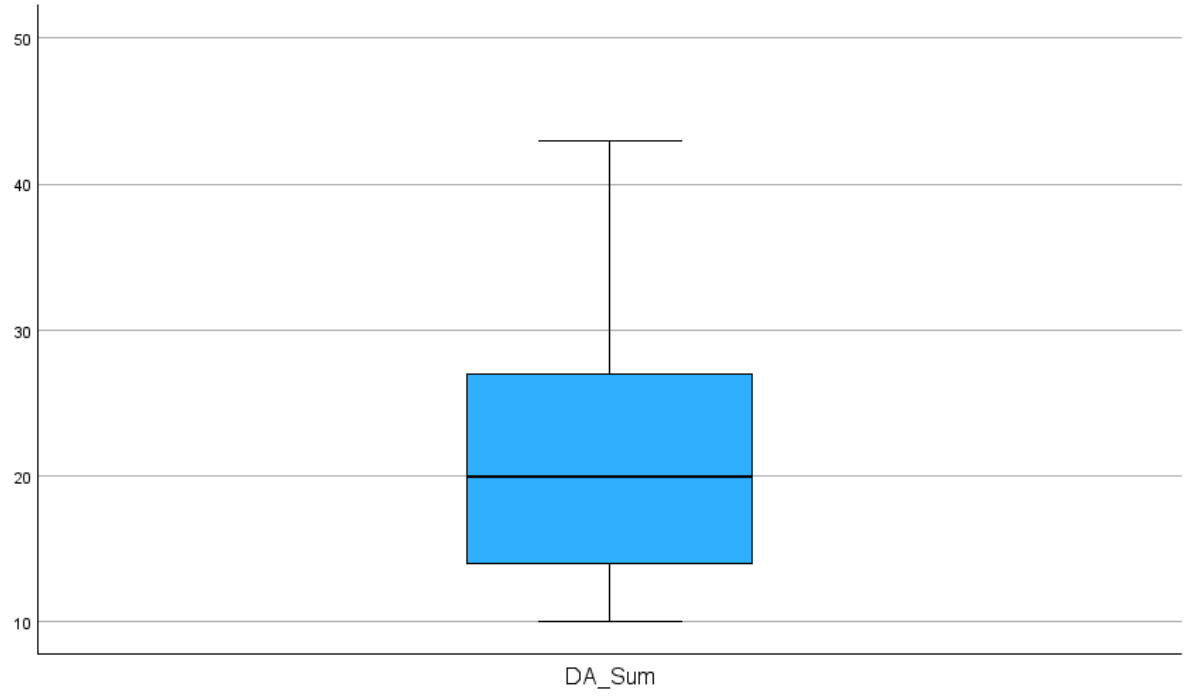
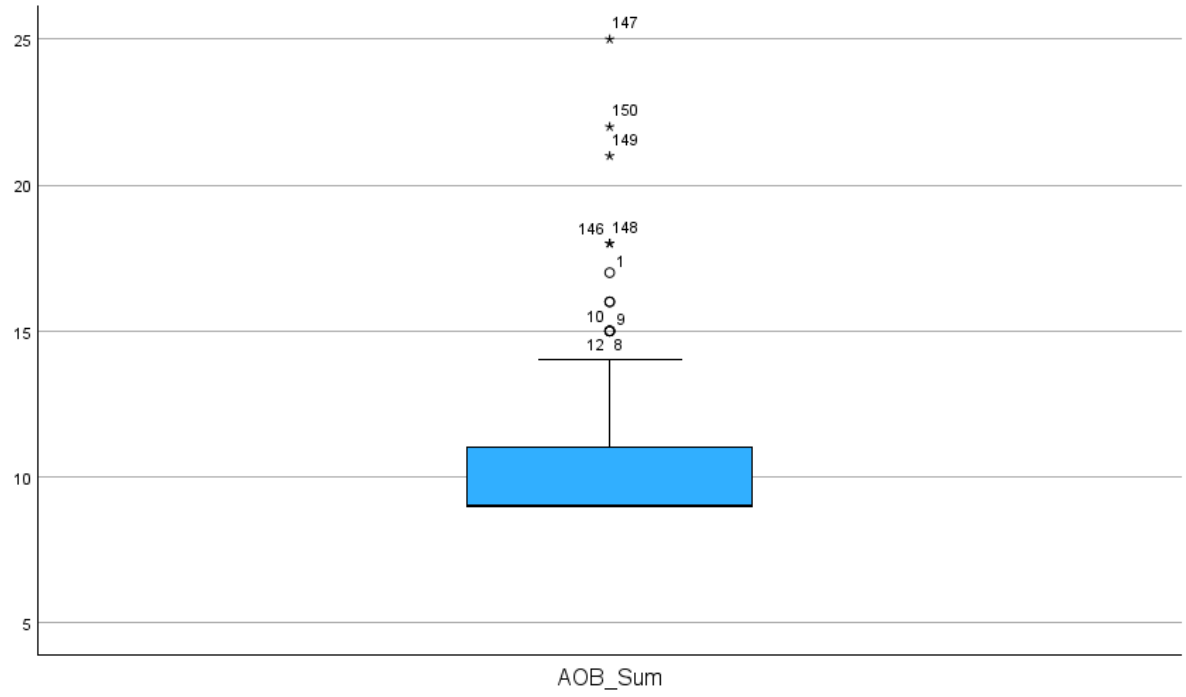


Figure 2.3.

Box-plot depicting significant outliers – Antisocial Online Behaviour



Linearity Assumption

Figure 3.1.

Scatterplot depicting linearity between Work-related Stress and Antisocial Online Behaviour

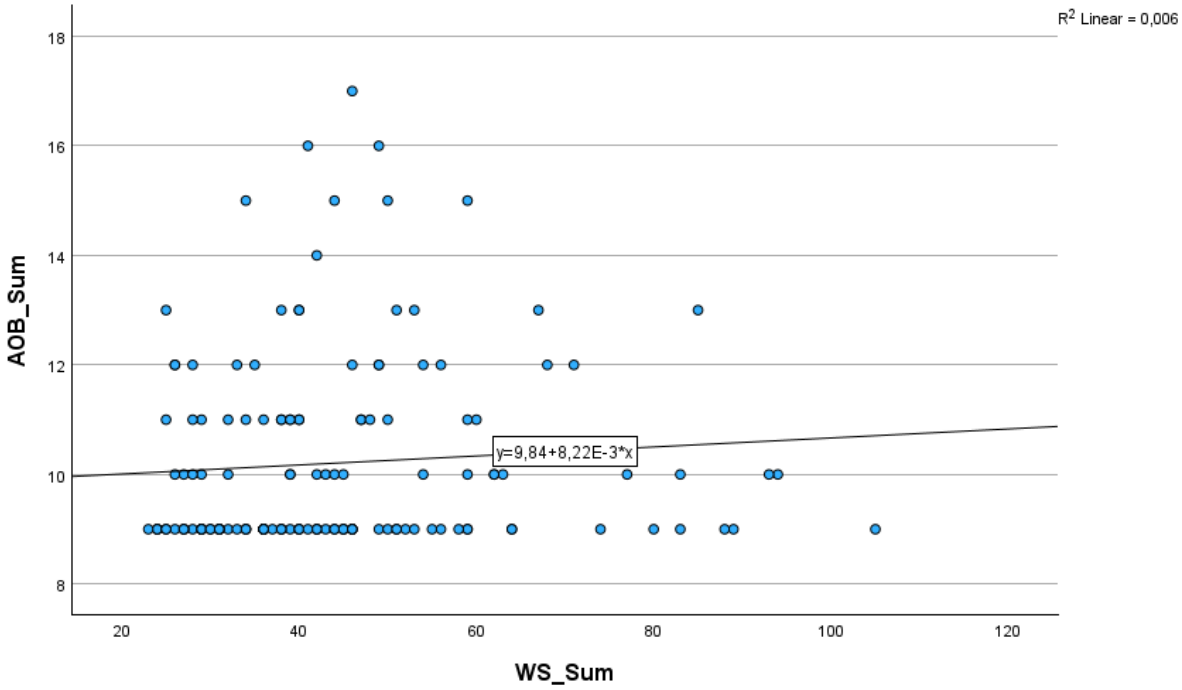


Figure 3.2.

Scatterplot depicting linearity between Displaced Anger and Antisocial Online Behaviour

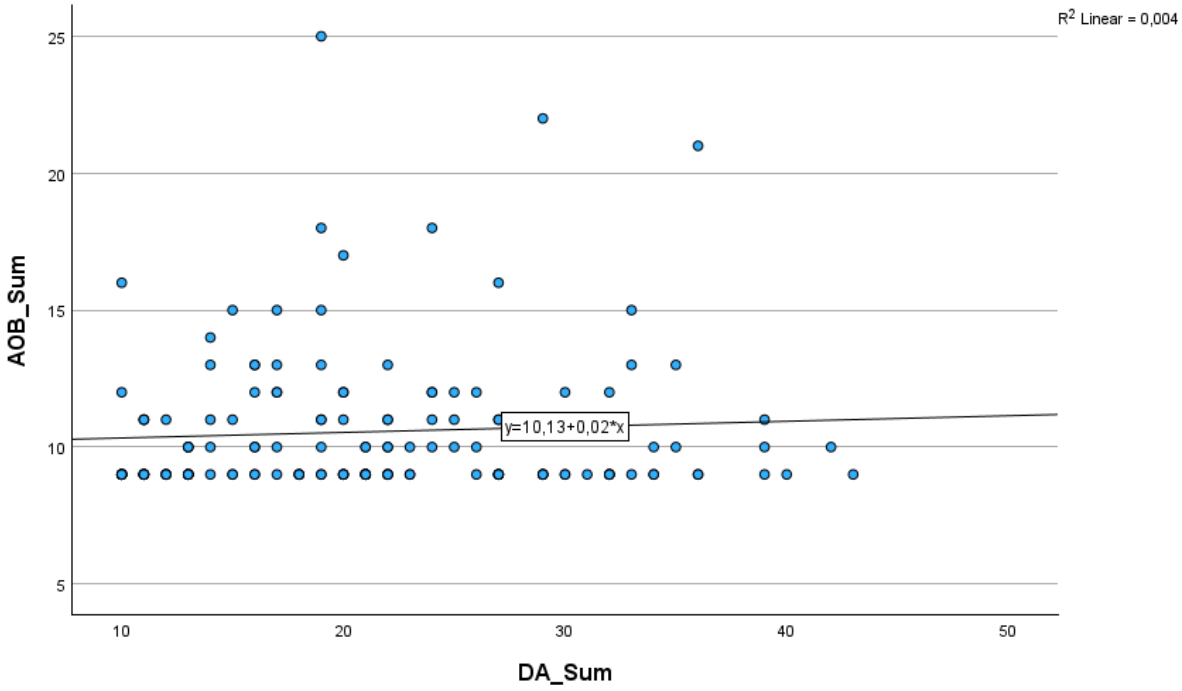
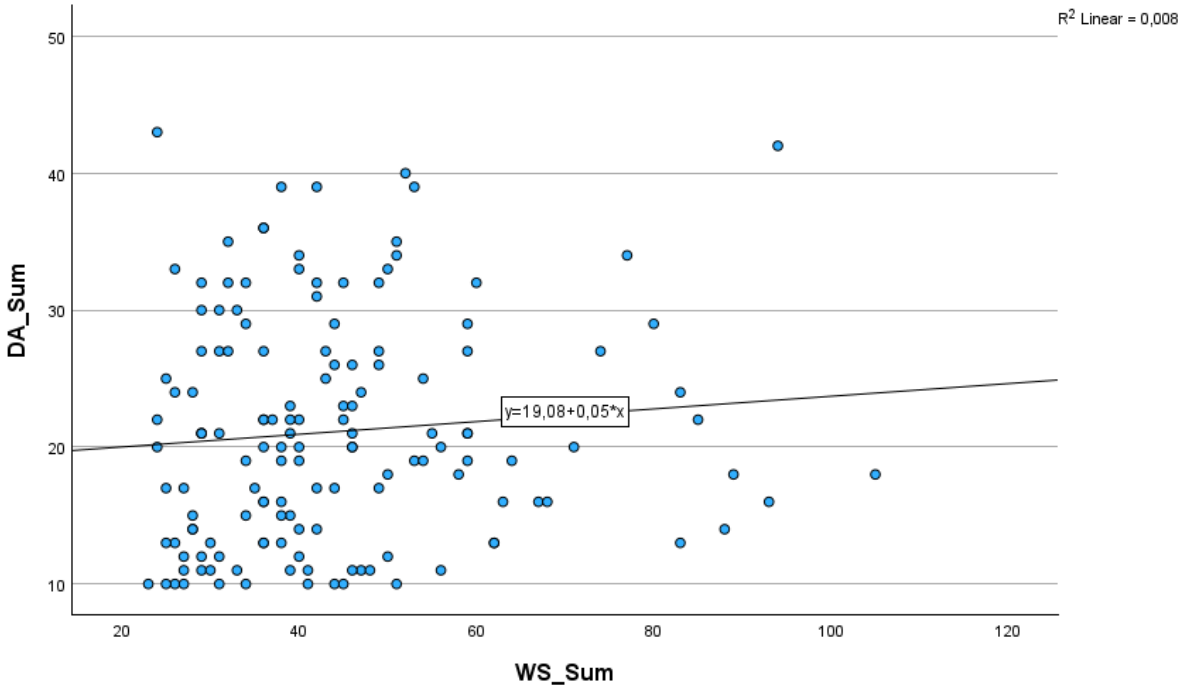


Figure 3.3.

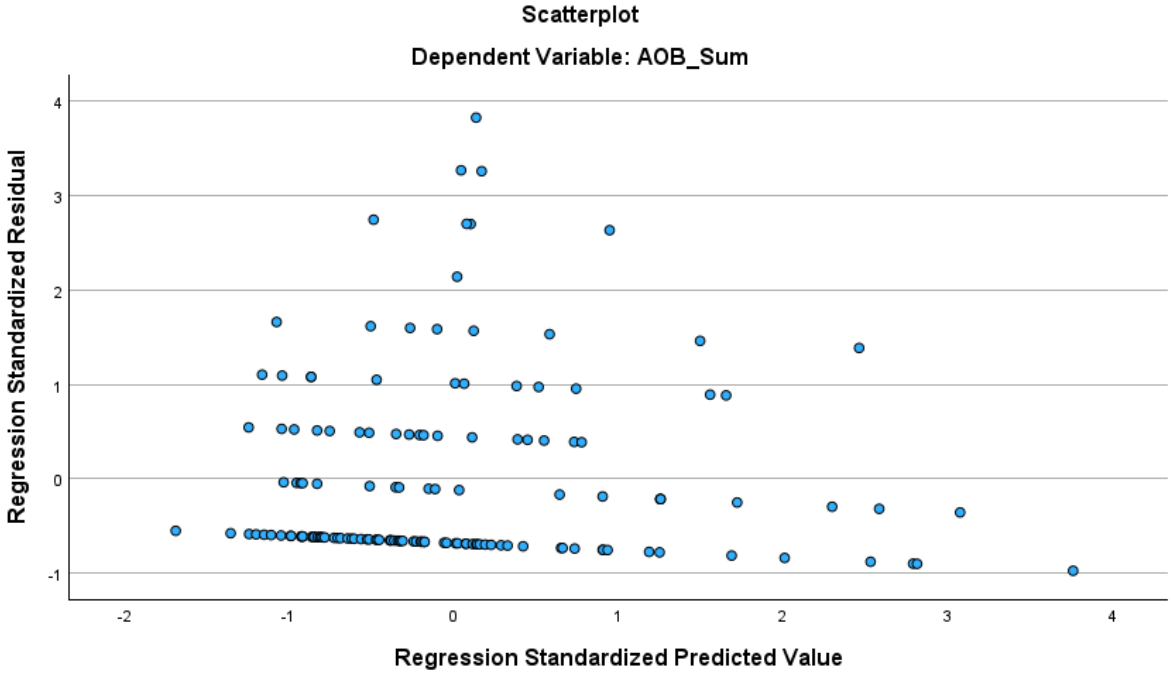
Scatterplot depicting linearity between Work-related Stress and Displaced Anger



Homoscedasticity Assumption

Figure 4.1.

Scatterplot of Regression Standardised Residuals



Normality of Residuals Assumption

Figure 5.1.

Histogram depicting the distribution of Regression Standardised Residuals

