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PSYCHOLOGICAL RESPONSES DURING THE CORONAVIRUS DISEASE (COVID-19) PANDEMIC AMONG THE SPORT MANAGEMENT STUDENTS AT THE UNIVERSITY OF JOHANNESBURG

A research dissertation presented to the Faculty of Health Sciences, University of Johannesburg, as partial fulfilment for the Master's Degree in Health Sciences, Chiropractic by



Supervisor: _____

Date: 2021-11-05 _____

Dr Caroline Hay

DECLARATION

I, Clemensia Josephine Haragaes, declare that this dissertation is my own unaided work. It is being submitted for a Master's Degree in Health Sciences, Chiropractic, at the University of Johannesburg. It has not been submitted before for any degree or examination in any other Technikon or University.

Clemensia Josephine Haragaes

On this 16th day of the month September 2021

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DEDICATION

In loving memory of my dearest Papa, Joseph Dawid Thomas (1942 – 2015) and

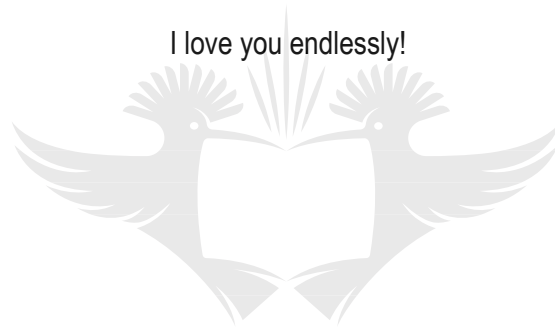
Mama, Clementine Thomas (1947 – 2021).

I thank God every single day for having trusted the two of you to raise and mold me into the lady that I am today.

I could never have come this far without your constant encouragement, support and unwavering faith in my capabilities. Thank you for teaching me to believe in my dreams and most importantly, to believe in myself. Thank you for your sacrifices. Thank you for your prayers.

You are missed dearly, every single day.

I love you endlessly!



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To my statistician, Jaclyn de Klerk, thank you for your assistance with my survey and the data collection and analysis. Your help is greatly appreciated.

To all the participants who took the time to complete the survey, thank you!

To Barbara and Bernhard Jaumann, none of this would have been possible without the both of you. Thank you for your love, support and most of all, for your patience.

To my friends and colleagues, thank you for your support.



ABSTRACT

Background

The problem statement identified in this research study concerns the insufficient knowledge around the psychological impact of the covid-19 pandemic on the Sport Management students at the University of Johannesburg.

Aim

The primary aim of the study was to explore the psychological effects concerning depression, anxiety and stress among the Sport Management students at the University of Johannesburg during the coronavirus (covid-19) pandemic.

Research Methodology

This was a quantitative, explorative contextual study which was conducted among the Sport Management students at the University of Johannesburg. The sample consisted of 102 Sport Management students that took part in the survey. The survey was an online anonymous questionnaire which was set up making use of Question Pro. After receiving permission from the relevant departments to use the students in the research study, the survey link along with the information letter were sent to the class representatives to distribute to the students. The data collection was achieved using the online questionnaire. The data was then analyzed by the researcher with the assistance of the Statkon department at the University of Johannesburg.

Results and discussion

The study concluded that, while the prevalence for stress among the Sport Management students at the University of Johannesburg was within the normal ranges, depression and anxiety were experienced at mild and moderate levels, respectively. The data further revealed that the female students in this study group experienced higher levels of anxiety than the male students. The measurement of these results was done using the DASS severity scale.

Conclusion and recommendations

The results of this study showed that there was no significant psychological impairment among the Sport Management students at the University of Johannesburg. Albeit this is the finding in this study group, mental health problems are a common and serious finding among university students regardless of the situation. Promoting mental health and making known that help is available are essential in maintaining mental health well-being among students. Further research is required into determining the long term

effects of the covid-19 pandemic on the psychological health of the Sport Management students at the University of Johannesburg. This research can also be expanded to include Sport Management students from different universities in South Africa.

Key Words

Coronavirus, Covid-19, Pandemic, Psychological, Depression, Stress, Anxiety, Sport Management students.



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CHAPTER ONE – INTRODUCTION

1.1 Problem Statement

The problem statement for this study concerns the psychological responses during the coronavirus (covid-19) disease pandemic among the Sport Management students at the University of Johannesburg (UJ).

The novel corona virus disease 2019 (covid-19), after initially being identified in Wuhan China in December of 2019, spread rapidly all over the world (Jiang, 2020). An unprecedented global public health crisis was caused by the emergence of this virus (Chaturvedi, Vishwakarma & Singh, 2021) which led to the implementation of strict policies in countries all over the world regarding public behavior (Jiang, 2020) in efforts to decrease the spread of the virus (Chaturvedi et al., 2021). Lockdowns and mandatory quarantines of all persons were implemented at domestic levels globally (Jiang, 2020). The shutting down of numerous businesses, the sudden limitations of interacting with others and the inability to travel has serious implications on mental health and may result in psychological difficulties including depression and stress (Chaturvedi et al., 2021). Due to the restrictions of non-essential public movement, institutions of higher learning transitioned to the digital sphere of learning and university students no longer attend classes physically (Chaturvedi et al., 2021). Students are considered to be a vulnerable portion of the population who are predisposed to higher levels of stress, depression and anxiety as a result of the unprecedented psychological impact of the pandemic (Safa, Anjum, Hossain, Trisa, Alam, Rafi, Podder, Koly, Azad, Ahmad, Nodi, Ashraf, Akhter, Ahmed & Hassan, 2020). The swift evolution of everything familiar to students and at such a large scale has severe psychological implications (Chaturvedi et al., 2021) therefore the need for an urgent evaluation of the mental health status of students all over the world is necessary.

The UJ places great importance on the psychological well-being of students and staff at the university. Numerous departments at the university have undertaken research to evaluate the psychological impact that the pandemic has had on the students in the respective departments, although no studies have been conducted to date to assess the psychological impact of the pandemic on the students pursuing a Diploma in Sports Management.

1.2 Aims of the Study

The aim of this study was to assess the psychological responses of the students pursuing a diploma in Sport Management at the UJ amidst the corona virus disease 2019 (covid-19) pandemic, specifically regarding depression, anxiety, and stress. Moreover, the study analyzed the differences in the psychological responses between the different academic years as well as the various demographic variables that were recorded. As a screening tool for depression, anxiety, and stress, those reporting high scores, were immediately encouraged to contact PsyCad for assistance.

1.2 Possible Outcomes or Contributions

The possible outcomes of this study include getting a better understanding of the psychological state of the Sport Management students regarding their levels of depression, anxiety and stress amidst the pandemic. It will also compare the differences in the levels of depression, anxiety and stress experienced between the different academic years.



CHAPTER TWO – LITERATURE REVIEW

2.1 Introduction

The various academic works that have been published on the novel coronavirus, covid-19, will be reviewed in this chapter. The chapter covers the following categories: Sport Management; Sport Management education program at UJ; coronaviruses; Severe Acute Respiratory Syndrome (SARS); Middle East Respiratory Syndrome (MERS); and Coronavirus disease (covid-19). Highlights in the similarities and differences between these diseases are commented on. Literature on the mental health implications of the previous as well as the current pandemic on the public, and on university students, has been reviewed.

2.2 Sport Management

Sport management is a business field that involves a combination of expertise related to organizing, planning, budgeting, leading, directing, controlling and evaluating within a department or organization whose service or primary product is focused directly on recreation and sport (Campbellsville University, 2021; Society of Health And Physical Educators, 2021). These skills can be carried out in an assortment of organizational settings, some of which include amateur sports, professional sports, college sports, sports marketing, sports sponsorship managing as well as sports events managing and marketing; among many others (Society of Health And Physical Educators, 2021; University of Johannesburg, 2021).

The career opportunities as a sports manager are plentiful due to how large and diverse the sports industry is. Examples of the career opportunities that exist for some of the management function areas in the sport industry include (Seifried, Agyemang, Walker & Soebbing, 2021):

- Public relations
- Facilities and events management
- Administration
- Law
- Finance
- Human resources

- Marketing
- Travel and/or tourism
- Communications or media

There is an enormous amount of competitiveness in the global sports industry, but despite that the sports manager needs to practice ethical behavior, be a good citizen and have the ability to find a balance between the demands of the market place and his/her conscience (Miragaia & Soares, 2017).

2.3 Sport Management education at UJ

The Sports Management course offered at UJ falls under the Faculty of Health Sciences in the Department of Sport and Movement Studies. It is a diploma course which is offered on a full time basis only and comprises of three years of study. The purpose of the course is to equip the students with the knowledge and practical skills they require to effectively manage and run the administration as well as implement marketing plans for small sports enterprises (University of Johannesburg, 2021).

Throughout all three years of study, a major focus is placed on business management, sport management and marketing. Year one, aside from the management and marketing modules, offers one additional module which is English. There are two additional modules in year two, namely Public Relations and End-User Computing, while year three offers Sport and Physical Recreation Studies as well (University of Johannesburg, 2021).

After successful completion of the course, the student will be capable of the following (University of Johannesburg, 2021):

- Implementing the functional management capabilities acquired to manage small sport enterprises.
- Coordinating a sport club event employing the principles of events management.
- Planning and putting a marketing plan into effect for an event or small sport enterprise.
- Being capable of carrying out the administrative functions of a small sport enterprise.

2.4 Coronaviruses

Coronaviruses are zoonotic respiratory viruses that, in their native form, are seldom transmitted between humans (Otter, Donskey, Yezli, Douthwaite, Goldenberg & Weber, 2016). The viruses have undergone mutations in order to allow for more efficient human-human transmission- (Otter et al., 2016). They are enveloped single-stranded positive-sense RNA viruses that are classified into the family Coronaviridae and fall into the four genera alpha, beta, gamma and delta (Aleebrahim-Dehkordi, Soveyzi, Deravi, Rabbani, Saghazadeh & Rezaei, 2021; Peiris & Poon, 2021). Of these four, the alpha and beta coronaviruses can infect humans (hCoV) (Aleebrahim-Dehkordi et al., 2021). The three coronaviruses that have been epidemic and pandemic causes are all beta coronaviruses and have been identified to be the causative agents of Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS) and Coronavirus Disease – 2019 (Covid-19) (Aleebrahim-Dehkordi et al., 2021). The coronaviruses that caused the aforementioned diseases have been named SARS-Cov, MERS-CoV and SARS-CoV-2, respectively (Aleebrahim-Dehkordi et al., 2021). Recent epidemiologic studies have proposed bats to be the primary hosts of these viruses which are then transmitted to humans via intermediate hosts (Abdelghany, Ganash, Bakri, Qanash, Al-Rajhi & Elhousseiny, 2020). Intermediate hosts represent appropriate media for genetic recombination and mutations and direct contact with these hosts is considered the key mechanism for the transmission of the virus from animals to humans (Abdelghany et al., 2020).

2.4.1 Severe Acute Respiratory Syndrome (SARS)

SARS-Cov was first detected in Guangdong, China, in November 2002 (Abdelghany et al., 2020). Following super-spreading events of an atypical viral pneumonia across 5 continents, the WHO issued a Global Health Alert warning in March 2003 (Peiris & Poon, 2021). SARS-Cov had spread to affect over 8000 people in 29 different countries and caused 774 deaths between 2002 and 2003 (Peiris & Poon, 2021; Aleebrahim-Dehkordi et al., 2021). Its outbreak was related to wild animals (Aleebrahim-Dehkordi et al., 2021) as research in the early stages of the epidemic found that 39% of the infected individuals in Guangdong had killed, handled, prepared and/or served them as food. Early research into the source of the SARS-Cov provided evidence that the live game animal trade in China was an interface for its emergence as well as the interspecies transmission of a precursor animal SARS-like coronavirus to humans (Peiris & Poon, 2021). With bats being the proposed natural reservoir for SARS-Cov,

epidemiologic studies have implicated the palm civet to be the intermediate host through which it was transmitted to humans (Abdelghany et al., 2020).

A combination of rapid case detection, prompt isolation of infected persons and the lack of asymptomatic cases led to the efficient interruption of transmission of the SARS-Cov outbreak in 2003. The WHO announced on 5 July 2003 that the SARS outbreak had come to an end since all chains of transmission were broken (Peiris & Poon, 2021). There has since been no evidence of SARS-Cov infection in humans thereafter (Albalwi, Khan, Aldrees, Udayaraja, Manie, Arabie, Alabdulkareem, Aljohani, Alghoribi, Alaskar, Alajlan & Hajeer, 2020; Rehman, Fariha, Anwar, Shahzad, Ahmad, Mukhtar & Haque, 2021).

2.4.2 Middle East Respiratory Syndrome (MERS)

Less than a decade after the WHO declared the end of the SARS outbreak, the first case of MERS-Cov infection was reported in 2012 (Bleibtreu, Bertine, Bertin, Houhou-Fidouh & Visseaux, 2020).

After its initial detection in June 2012 in Jeddah, Saudi Arabia, MERS-Cov had spread to several neighboring countries and eventually spread across continents to Africa and Europe as well (Bleibtreu et al., 2020). As of October 2020, there have been more than 2600 laboratory confirmed cases of infection and 880 fatalities spanning 27 countries (Peiris & Poon, 2021) with the vast majority of cases, 71 %, having been reported in Saudi Arabia (Bleibtreu et al., 2020).

Early epidemiologic research has proven that the MERS-Cov genotype was closely related to a lineage of beta-coronaviruses found in bats (Bleibtreu et al., 2020) which led to the suggestion that the natural reservoir for the animal MERS-like coronavirus may be bats, while the probable intermediate host for the virus is suspected to be the dromedary camel that is mostly found in Africa, Central Asia and the Middle East (Peiris & Poon, 2021). Even though the first MERS-Cov human infection was only reported in 2012, there is serological evidence of MERS-Cov infection in these camels from sera samples that had been obtained and archived from Eastern African dromedary camels as early as 1990 (Baharoon & Memish, 2019).

It has been proposed that the animal-human transmission of the virus occurs via direct contact with camel saliva, respiratory droplets, and camel's respiratory organs during slaughtering (Baharoon & Memish, 2019). The consumption of camel products such as undercooked meat, milk or urine may also be a mechanism of transmission of the virus (Abdelghany et al., 2020).

Almost a decade after its emergence, MERS cases continue to sporadically occur in Saudi Arabia as well as the Middle Eastern regions (AlBalwia et al., 2020).

2.4.3 Coronavirus disease 2019 – SARS-Cov-2

In December of 2019 the Novel Coronavirus disease (covid-19), a viral pneumonia of unknown origin, emerged in Wuhan, China (Burhamah, Alkhayyat, Oroszlanyova, Alkenane, Almansouri, Behbehani, Karimi, Jafar & Alsuwaidan, 2020). Epidemiologic studies have gathered sufficient evidence based on genetic analysis and propose the natural reservoir for the virus that causes covid-19 to be bats (Dhama, Patel, Sharun, Pathak, Tiwari, Yattoo, Malik, Sah, Rabaan, Panwar, Singh, Michalak, Chaicumpa, Martinez-Pulgarin, Bonilla-Aldana & Rodriguez-Morales, 2020). The animal that serves as the intermediate host that aids in the animal-to-human interface for the transmission of the virus, is yet to be confirmed (Peiris & Poon, 2021).

As this highly infectious disease began spreading rapidly through the continents to many countries, the World Health organization declared the outbreak an international public health emergency on 30 January 2020 (Dubey, Biswas, Ghosh, Chatterjee, Dubey, Chatterjee, Lahiri & Lavie, 2020). On 11 March 2020 the World Health Organization declared the covid-19 outbreak a pandemic (Burhamah et al., 2020).

The incubation period of covid-19 varies from 1 – 14 days with an average of 5 days (Dhama et al., 2020). The three main ways in which the disease spreads are (Centers for Disease Control and Prevention, 2021):

1. Inhaling respiratory droplets and small particles that contain the virus which are exhaled by an infected person. This is most likely to occur when physically less than 6 feet away from an infected person.
2. The small droplets containing the virus can land on the nose, eyes and mouth through the sprays or splashes with a cough or sneeze.
3. Getting the virus on the hands by touching contaminated surfaces and then touching the nose, eyes or mouth with the contaminated hands.

In most cases the Coronavirus disease causes mild to moderate respiratory illness with recovery that does not require special treatment. Those who are at risk for developing more serious illness from being infected with the SARS-Sov-2 are the elderly as well as people who have other underlying medical conditions such as diabetes, hypertension, chronic respiratory disease, cardiovascular disease and cancer, to name a few (World Health Organization, 2021).

Albeit the virus affects different people in different ways, the most common symptoms of covid-19 disease are fever, a dry cough and fatigue (World Health Organization, 2021). Less common symptoms include aches and pains, conjunctivitis, diarrhea, loss of smell or taste, a rash on the skin or discoloration of the fingers and toes (World Health Organization, 2021). Serious symptoms for which one should seek urgent medical attention include chest pain or pressure, shortness of breath or difficulty breathing, loss of speech or movement, the inability to wake up or stay awake and skin, lips or nailbeds that become pale, gray or blue-colored (Centers for Disease Control and Prevention, 2021). Some people remain asymptomatic even though infected with the virus (World Health Organization, 2021).

Ways in which to prevent infection with the virus and to slow transmission include (World Health Organization, 2021; Centers for Disease Control and Prevention, 2021):

1. Either wash hands regularly with soap and water, or clean them with an alcohol-based hand sanitizer.
2. Maintain a distance of at least 1 meter between you and other people (especially people who are coughing or sneezing).
3. When coughing or sneezing do so into a flexed elbow.
4. Refrain from touching your face.
5. Stay at home when you are unwell.
6. Avoid unnecessary travel and stay away from large groups of people.
7. Improve ventilation in closed spaces.
8. Wear a face mask covering both the nose and the mouth.
9. Wipe surfaces and door handles with soap water frequently.
10. Get vaccinated.

Covid-19 vaccines are an effective way of protecting oneself from getting seriously ill or dying from the disease and it may also provide indirect protection for the people around you, because it is less likely to infect others if you are protected from getting the disease. The WHO has, as of 3 June 2021, evaluated that the safety and efficacy of the following covid-19 vaccines have met the criteria to provide a high degree of protection against the disease (World Health Organization, 2021):

- AstraZeneca / Oxford vaccine

- Johnson and Johnson
- Moderna
- Pfizer / BionTech
- Sinopharm
- Sinovac

The vaccine development process which usually takes 10 – 15 years has been reduced to 1 – 2 years due to the public health threat of covid-19 (Blasi, Gramegna, Sotgiu, Saderi, Voza, Aliberti & Amati, 2021). Albeit getting vaccinated against covid-19 has been proven to be effective in preventing severe illness and death, the extent to which the vaccine keeps you from being infected or passing it on to others is yet to be elucidated, which is why maintaining the precautions set in place to help slow the spread of the virus are of utmost importance even after getting the vaccine (World Health Organization, 2021).

Attributable to its simplicity and specificity as a qualitative assay, the most frequently used and acceptable method for the detection of SARS-Cov-2 is the reverse transcription-quantitative Polymerase Chain Reaction (RT-qPCR) tool which is based on the detection of viral RNA in a sample retrieved from either the upper respiratory tract (nasopharynx) or the lower respiratory tract (oropharynx) (Kayaaslan, Kalem, Eser, Hasanoglu & Guner, 2021; Abdelghany et al., 2020). Early detection, early diagnosis, early quarantine as well as early treatment are important lessons learned from the SARS outbreak in 2002 which have been implemented in the fighting against the covid-19 pandemic (Liu, Xu, Wang & Wang, 2020). Individuals who exhibit symptoms of covid-19 or have been in close physical contact with someone who was diagnosed with covid-19 - with or without symptoms - are urged by the WHO to get tested immediately (World Health Organization, 2021). It is also highly recommended to self-isolate and maintain a physical distance of more than 1 meter from others while waiting for the covid-19 test results (Centers for Disease Control and Prevention, 2021).

Common treatment options, in the event of infection with the virus, are isolation, symptomatic as well as supportive treatments (Abdelghany et al., 2020; SA Coronavirus Online Portal, 2021). The treatment strategies generally applied are bedrest, supportive treatment ensuring adequate attention to water and electrolyte balance, adequate heat and monitoring vital signs like the oxygen saturation levels (Liu et al., 2020). The elderly and patients with comorbidities infected with SARS-Cov-2 often require admission to

the hospital as they may need ventilator support and oxygen administration, while self-isolation in conjunction with a healthy diet is the best recommended form of therapy for approximately 80% of individuals with covid-19 in view of the fact that they mostly exhibit mild symptoms only (Rehman et al., 2021). Depending on the severity of the symptoms as well as the individual health state, the recovery period differs among patients (Abdelghany et al., 2020). Advance respiratory failure due to alveolar damage caused by the virus may occur in patients with severe symptoms and result in death, while patients with minor symptoms have been reported to recover within a week (Abdelghany et al., 2020).

2.4.4 Similarities and differences between SARS, MERS and COVID-19

Both SARS and MERS, like COVID-19, have an incubation period that ranges between 1 – 14 days (Peiris & Poon, 2021). During the early stages of all three diseases, the typically reported signs and symptoms are headaches, a fever, cough, myalgia, nausea, diarrhea and malaise (Abdelghany et al., 2020) followed by a progression to acute respiratory distress syndrome (ARDS), shortness of breath and, in more severe cases, multiple organ failure (Peiris & Poon, 2021). In immune compromised patients the exhibited signs and symptoms may be atypical in SARS as well as MERS (Peiris & Poon, 2021).

While there was a complete lack of asymptomatic cases during the 2003 SARS outbreak, asymptomatic infections are common in MERS and covid-19 and the virus can be transmitted from asymptomatic individuals and cause serious symptoms in newly infected individuals (Baharoon & Memish, 2019).

The case fatality rate (CFR) is defined, in epidemiology, as the proportion of people who, among all individuals diagnosed with a specific disease, die from the said disease over a certain period of time (Macedo, Goncalves & Febra, 2021). The SARS-Cov outbreak had a CFR of approximately 10% - 15%, while that of the MERS-Cov outbreak reached approximately 37% (Abdelghany et al., 2020). Research has revealed that the SAR-Cov-2 has a higher transmission rate compared to the SARS-Cov and MERS-Cov, but currently it has an overall CFR of only 2% - 4% (Abdelghany et al., 2020). Despite its low CFR, SARS-Cov-2 is still proven to be the deadliest amongst the three discussed viruses as far as the number of deaths is concerned (Dhama et al., 2020). While SARS-Cov and MERS-Cov have caused 774 and 880 associated deaths, respectively (Peiris & Poon, 2021), covid-19 related deaths are at an approximate amount of 3,820,000 globally at the time of writing this paper (World Health Organization, 2021). With a

number of contributing factors like the involvement of more countries and the changing dynamics of the virus, the covid-19 CFR may change in the future (Dhama et al., 2020).

2.5 Covid-19 Impact on the Sport Industry

Being a major contributor to social and economic development, the role of sport is well recognized by governments all over the world (United Nations, 2020). When the covid-19 pandemic initially hit, the universally adopted restrictions, in efforts to safeguard the public as a whole, also led to the postponement and cancelation of a number of sporting events (Nhamo, Dube & Chikodzi, 2020). In the first instance, many countries only imposed limitations on major sporting events at international and regional levels – including football tournaments, athletic championships, rugby, basketball games, wrestling, marathons and weightlifting amongst many others - but later these restrictions were extended to all events that brought together considerable crowds, audiences, teammates and opponents (United Nations, 2020; Philippe, Schiavio & Biasutti, 2020).

The sport industry is at an estimated global value of U\$ 756 billion annually, but in the face of the covid-19 pandemic many jobs, not only those of sport professionals but also those in the related sporting and retail services industries that are associated with events and leagues - which include travel, catering, tourism and media broadcasting among many others – were put at risk globally (United Nations, 2020). This multi-billion dollar industry was hit hard and resulted in sport governing bodies being left in financial distress due to bankruptcy as well as professional athletes losing their income on account of complete cuts of or major reductions in their salaries. Great financial losses were also incurred by broadcasters, betting firms, sponsors and others in the sport value chain (Nhamo et al., 2020).

The social benefits of sport events have also been impacted by the cancellation of games at global and regional levels. Sport is considered a valuable tool for building bridges and fostering communication between communities and is often used to access at-risk or marginal populations. These social groups, particularly in divided societies, are able to play more central roles toward development and social transformation through sport (United Nations, 2020).

Coach-athlete relationships which are crucial to practicing and training and play a fundamental role in successful sporting performances by the athletes were also put under a lot of strain by the pandemic (Philippe et al., 2020). There is an immense amount of pressure on these relationships, with the professional athletes having to reschedule their training and maintain or improve on their fitness levels at home without the physical presence of their coaches for the majority of the time (Philippe et al., 2020).

2.6 Mental Health

2.6.1 Definition of mental health

Mental health, an essential and integral part of health (World Health Organization, 2018), is defined as a state of an individual's well-being in which he/she realizes his/her own abilities and strives to live up to his/her potential while being able to cope with the normal stresses of life (Jester & Kang, 2021). It is determined by an assortment of biological, environmental and socio-economic factors and is not limited to the presence or absence of mental disorders (World Health Organization, 2018). It involves the maintenance of happiness and wellness which constitutes getting enough hours of good quality sleep, connecting with other people in the outside world and working creatively and productively in efforts to make contributions to one's community (Jester & Kang, 2021). Highly prevalent mental disorders that have been exacerbated on a global scale by the current pandemic include anxiety, stress and depression (Fernandez-Abascal & Martin-Diaz, 2020).

2.6.2. Anxiety

Anxiety is defined as a state of emotion that is characterized by worried thoughts, tension and physical changes (Brahmbhatt, Richardson & Prajapati, 2020). The feeling is commonly described as a displeasing indistinct sense of uneasiness mostly accompanied by autonomic responses such as palpitations, headaches, tightness in the chest, perspiration, restlessness and stomach discomfort (Sadock, Sadock & Ruiz, 2017). It is a response to an internal, vague, real or potential threat that can endanger an individual's homeostasis and serves as a protective mechanism which alerts one of impending danger and stimulates the sympathetic nervous system to facilitate the response to the possible threat (Garcia & O'Neil, 2020). This emotion is experienced by everyone (Sadock et al., 2017) and may be a normal and adaptive response which can be warranted and helpful causing temporary fear or worry leading to appropriate responses in preventing a threat or reducing the possible consequences

of a threat (Brahmbhatt et al., 2020). However, when unremitting and persistent levels of anxiety are experienced by an individual and impair their ability to perform activities, it becomes maladaptive and harmful (Brahmbhatt et al., 2020) and is then an anxiety disorder (Sadock et al., 2017).

Anxiety disorders form the most common group of psychiatric disorders that are a prevalent problem globally (Mohammadi, Pourdehghan, Mostafavi, Hooshyari, Ahmadi & Khaleghi, 2020). Due to their high prevalence, comorbidity and chronicity, anxiety disorders have been ranked the ninth most health-related cause of disability (Penninx, Pine, Holmes & Reif, 2021). They are predictors for unstable relationships, excessive work absenteeism and poor functioning of an individual with serious effects on somatic health and economic costs (Penninx et al., 2021). Higher socio-economic status decreases the prevalence of anxiety disorders (Sadock et al., 2017).

Generalized Anxiety Disorder (GAD)

Generalized Anxiety Disorder (GAD), characterized by excessive and persistent worry, is one of the most common anxiety disorders that affects up to 20% of patients seeking primary health care and 7% of the general population and causes significant disability, impairment and comorbidities (Mohammadi et al., 2020). Their worries predominantly revolve around money, family, work and health, which leads them to anticipate disastrous outcomes even when there is no reason for concern (Sadock et al., 2017). In severe cases of GAD, what causes anxiety is the mere thought of getting through the day (Penninx et al., 2021) with them feeling like it is beyond their control to stop the cycle of worry (Mohammadi et al., 2020).

Albeit the exact etiology of GAD is unknown, there is evidence that environmental influences, genetics and life experiences, stressful ones in particular, are all risk factors for its onset which comes on gradually, mostly before or in early adulthood (Penninx et al., 2021). Women are more likely to have generalized anxiety disorder than their male counterparts (Sadock et al., 2017).

Common symptoms of GAD include (Anxiety and Depression Association of America, 2021):

- Having a sense of impending doom, panic or danger.
- Feelings of irritability, nervousness or feeling on edge.
- Increased heart rate.
- Hyperventilating, trembling or sweating

- Sleep disturbances.
- Gastrointestinal difficulties.
- Inability to concentrate on tasks.
- Feeling of faintness or fatigue.

In order to make a diagnosis of GAD, the following criteria need to be met (Sadock et al., 2017):

1. Finding it difficult to control worry on most days for a duration of at least six months.
2. At least three of the common symptoms need to be present.
3. The common symptoms must cause distress and impairment to the individual.

GAD is very treatable and therefore requires a prompt and accurate diagnosis (Penninx et al., 2021).

2.6.3 Stress

Stress is defined as a state of agitation, tension or preoccupation when an individual perceives the environmental demands as challenging or exceeding his/her capabilities and threatening his/her well-being (Commodari & Nuovo, 2019). It is often triggered by stressors which are unexpected or new events that make an individual feel like they have no control or that their sense of self is threatened (Saccaro, Schilliger, Dayer, Perroud & Piquet, 2021).

The fight/flight response is triggered by stress hormones produced by the body when an individual encounters a stressful or traumatic event (Sadock et al., 2017). The stress response is a useful and protective mechanism as it facilitates a quick response to the stressor, after which the stress hormones usually go back to their normal levels (Sadock et al., 2017). However, when the stress or trauma that the individual is exposed to is of a long duration, a high intensity or in the presence of other pathogenic processes, stress-induced psychiatric disorders may occur (Commodari & Nuovo, 2019).

Acute stress disorder as well as post-traumatic stress disorder (PTSD) are both marked by overwhelming stress after experiencing a stressful or traumatic event and their symptoms are similar (Sadock et al., 2017).

Acute stress disorder

Acute stress disorder may cause symptoms between three days to one month after the event has occurred and cause flashbacks or nightmares, reliving the event or trauma in dreams and a feeling of numbness and detachment from oneself (American Psychiatric Association, 2021). Major distress and disruption of daily life are consequences of acute stress disorder and approximately half of the people diagnosed with it develop PTSD (Sadock et al., 2017).

Treatment, including psychotherapy and anti-depressants, can help ease and control the symptoms as well as prevent the individuals' condition from deteriorating and transforming into PTSD (American Psychiatric Association, 2021).

Posttraumatic Stress Disorder (PTSD)

Posttraumatic stress disorder causes distressing, intense thoughts and feelings that are related to the traumatic event and last long after the occurrence of the event (Sadock et al., 2017). Individuals with PTSD have strong and negative reactions to ordinary things like an accidental touch or an unexpected loud noise and go lengths to avoid situations or people that remind them of the traumatic event (American Psychiatric Association, 2021).

The etiology of PTSD is the stressor, which is the primary causative factor in the development of the disorder, but is not experienced by everyone after a traumatic event (Sadock et al., 2017). Exposure to the stressor alone does not suffice in the development of the disorder, therefore the individual's pre-existing psychosocial and biological factors as well as events which may have occurred prior to and post stressor exposure need to be taken into consideration (Sadock et al., 2017).

The predisposing risk factors that play a role in the etiology of PTSD are (Sadock et al., 2017):

- Trauma during childhood.
- Female gender.
- Genetic vulnerability to psychiatric illness.
- Insufficient peer or family support system.

- Antisocial personality disorder traits or borderline paranoia
- Recent stressful life changes
- Recent excessive alcohol intake
- Perception that there is an external locus of control rather than an internal one.

Epidemiologic studies have shown that the lifetime prevalence of PTSD in the general population is approximately 8%, while the lifetime incidence is between 9% and 15% (Sadock et al., 2017). The disorder is most prevalent in young adults although it can appear at any age from as young as childhood (American Psychiatric Association, 2021).

The symptoms of PTSD are divided into four categories in the fifth Diagnostic and Statistical Manual of Mental Disorders (DSM-5) which are as follows (Sadock et al., 2017; American Psychiatric Association, 2021):

1. Intrusion – The individual experiences intrusive thoughts such as vivid flashbacks, distressing dreams and involuntary memories.
2. Avoidance – The individuals avoid people, objects, places, activities and situations that may trigger the traumatic memories. They refrain from talking about the event and expressing how they feel about what happened.
3. Alterations in cognition and mood – The individual is unable to remember crucial aspects of the traumatic event which leads to distorted thoughts about him/herself or others. The cause or consequences of the event may also be misrepresented leading to wrongful blaming of others or him/herself. There are generally ongoing feelings of guilt, shame, anger, horror and fear. They are void of positive emotions and feel estranged or detached from others.
4. Alterations in arousal and reactivity – The individual behaves in a self-destructive or reckless manner, showing symptoms of irritability and having angry outbursts. They are very suspicious and are overly watchful their surroundings. They are easily startled, have poor concentration and sleeping habits.

The diagnosis of Posttraumatic Stress Disorder requires the presence of the symptoms, which must cause significant distress or disruption of the individual's daily functioning, for more than one month (Sadock et al., 2017). In numerous instances, the symptoms appear within approximately three months of the traumatic event, although there have been cases where the symptoms appeared much later after the event (American Psychiatric Association, 2021). These symptoms then persist for months and sometimes years (Sadock et al., 2017).

For some people symptoms of PTSD disappear or subside over time, while others get better with help from their peer or family support systems; therefore, not everyone who experiences PTSD requires psychiatric treatment (Sadock et al., 2017). There are however individuals who need professional treatment to recover from the intense and disabling psychological distress caused by this disorder (Sadock et al., 2017).

Treatment for PTSD is offered by psychiatrists and other mental health professionals and may include psychotherapy (talk therapy) as well as medication which are both evidence-based treatments for the disorder (Sadock et al., 2017).

2.6.4 Depression

Depression, a common mood disorder which is mainly characterized by a loss of interest or pleasure as well as a depressed mood, is estimated to have affected 332 million people globally (Lin, Lawrence, Huang, Lin & Gao, 2021). Individuals with depression report feelings of low self-worth, guilt, sadness, loss of interest or pleasure, disturbed sleep, poor concentration, fatigue as well as physical symptoms with no apparent physical cause (World Health Organization, 2019). This affective disorder can be recurrent or long lasting, impairing the affected individual's ability to cope with daily tasks or function at work or school (Sadock et al., 2017). It is one of the main causes of disability in the world and can lead to suicide, which is the second leading cause of death between ages 15 – 29, when severe (World Health Organization, 2019). When an individual presents with only major depressive episodes, he/she is said to have major depressive disorder or unipolar depression (Sadock et al., 2017).

Major Depressive Disorder

Major depressive disorder is a common psychiatric illness that occurs without a history of hypomanic, mixed or manic episodes and lasts at least two weeks accompanied by a minimum of four of the symptoms that are experienced with this disorder (Sadock et al., 2017; World Health Organization, 2020).

The etiology of major depressive disorder is a complex interaction of the biological, social and psychological factors of an individual. Adverse life events and environmental stressors also play a major role in its etiology (World Health Organization, 2020; American Psychiatric Association, 2021):

- Biological factors – (1) Genetic studies have shown that major depressive disorder runs in families.
(2) Abnormal levels of some chemicals in the brain have been hypothesized to play a role in the pathophysiology of major depressive disorder. The two neurotransmitters most implicated are norepinephrine (NE) and serotonin, of which insufficient levels of either one are thought to be etiologic factors. Reduced activity of dopamine is also theorized to play a role in the etiology of the disorder.
- Psychosocial factors - Environmental stress and life events – Some individuals may become vulnerable to this disorder if continuously exposed to neglect, violence, abuse or poverty.
 - Personality factors – Individuals who are easily overwhelmed by stress, have low self-esteem or are generally pessimistic are at greater risk of experiencing this disorder.

Recent surveys have shown that, out of all psychiatric disorders, major depressive disorder has the highest lifetime prevalence of 17% (Sadock et al., 2017). In any given year, an estimated 1 in every 15 adults (6.7%) is affected by major depressive disorder and women are more likely to be affected than men (American Psychiatric Association, 2021). While 50% of all individuals with major depressive disorder have an onset between 20 and 50 years of age, the mean age of onset is approximately 40 years (Sadock et al., 2017).

The symptoms for major depressive disorder, which must be present for at least two weeks, are (World Health Organization, 2020; American Psychiatric Association, 2021):

- Having a depressed mood or feeling sad.
- Increased fatigue or loss of energy.
- Feelings of guilt or worthlessness.
- Difficulty sleeping or sleeping excessively.
- Loss of pleasure or interest in activities that the individual once enjoyed.
- Having trouble concentrating or making a decision.
- Thoughts of death or suicide.

The diagnosis of this disorder is divided into two categories, namely “Major depressive disorder; single episode” or “Major depressive disorder; recurrent” (Sadock et al., 2017). The DSM-5 states that, in order to diagnose an individual with recurrent major depressive disorder, at least two distinct episodes must be experienced and separated by a minimum of two months. During the two months the individual must not experience any severe symptoms of depression (Sadock et al., 2017).

Treatment options for major depressive disorder are generally directed at several goals which include assuring the individual’s safety, completing a diagnostic evaluation of the individual as well as initiating a treatment plan that not only addresses the immediate symptoms, but also the individual’s future well-being (American Psychiatric Association, 2021; Sadock et al., 2017). Current treatment protocols emphasize psychotherapy and pharmacotherapy, but should also assess the number of and severity of stressors in the individual’s life as these are associated with increased rates of relapses (Sadock et al., 2017).

2.7 Covid-19 Pandemic Burden on Mental Health

The ongoing public health crisis of global concern caused by the covid-19 pandemic has proven to be a psychologically challenging period for the public on a global scale (Khan, Sultana, Hossain, Hasan, Ahmed & Sikder, 2020). This disease has spread to several countries worldwide, since its outbreak in December 2019, and caused obvious panic and psychological distress all over the world (Burhamah et al., 2020).

The SARS-Cov-2 outbreak has triggered a surge of research studies which is the largest by far and directly reflects the magnitude of the crisis at hand (Haghani, Bliemer, Goerlandt & Li, 2020). A great deal of this research investigated the burden on mental health that was imposed by the pandemic (Haghani et al., 2020). Quarantine, defined as “the separation and restriction of movement of people who have potentially been exposed to a contagious disease to ascertain if they become unwell, for reducing the risk of them infecting others in the community”, has been used as a preventive measure for centuries and proved effective during major infectious outbreaks by controlling the spread of disease (Khan et al., 2020). Quarantine has played a major role in causing psychological distress and mass hysteria due to the perception of loss of control and getting cornered which in some cases is intensified when families need to be separated, when there is loss of financial stability, when basic essential supplies are insufficient, and through the spreading of vague and false information and improper communication through the media about the progression of the disease (Dubey et al., 2020).

Research undertaken in previous outbreaks revealed that the psychological impact of being quarantined may range from immediate effects like anger, stress, denial, loneliness, frustration, insomnia, despair, depression, anxiety, to extreme ramifications like post-traumatic stress disorder and suicide (Dubey et al., 2020; Fernandez-Abascal & Martin-Diaz, 2020). Studies undertaken on different populations during the current SARS-Cov-2 outbreak revealed similar results indicating that there was an overall decline in happiness and life satisfaction with an increase in negative emotions including anxiety, fear, confusion, anger and an increased sensitivity to social risks (Haghani et al., 2020). The high levels of anxiety and distress are all natural responses to the radical change in lifestyle, perceived risk of acquiring the infection and the interruption of the usual daily routines (Khan et al., 2020; Dubey et al., 2020).

The factors which were found to be associated with increased levels of the negative emotions were financial stress, female gender, loss of jobs, spending a large amount of time on social media following covid-19 related news, fear of infection of family members, chronic or psychiatric illnesses, isolation and reduced social support, amongst others (Burhamah et al., 2020). Being a healthcare worker is a risk factor for mental health disorders as well and there have already been cases of suicide reported among healthcare workers since the emergence of the disease (Haghani et al., 2020).

These unavoidable negative emotions can be profound among high-risk groups (Dubey et al., 2020) into which university students have been categorized (Haghani et al., 2020).

2.8 Previous Studies: Covid-19 Pandemic Mental Health Burden on University Students

Many researchers took it upon themselves to investigate the psychological challenges that university students are facing during the covid-19 pandemic and found that, in the short term, the students' psychological states were negatively affected and that there is a great possibility of long term mental health difficulties in this group (Kamaludin, Chinna, Sundarasan, Khoshaim, Nurunnabi, Baloch, Sukayt & Hossian, 2020).

The suspension of face-to-face learning with the sudden move to online learning, the delays in applications to universities, the postponements of examinations and the uncertainty concerning future decisions and employment possibilities on account of the pandemic and its repercussions are all potential contributing factors to the high levels of stress, anxiety and depression in this group (Burhamah et al., 2020). Final year and/graduating students are concerned about their future study plans and careers amid this unprecedented pandemic (Kamaludin et al., 2020).

A few studies that investigated the socio-demographic predictors of increased psychological distress among university students stated that a large number of students reported having experienced moderate to mild levels of anxiety due to the pandemic (Khawar, Abbasi, Hussain, Riaz, Rafiq, Mehmood, Sheikh, Amaan, Fatima, Jabeen, Ahmad & Farooq, 2021). The online mode of learning was found to be unsatisfactory, unproductive and stressful among most students, but especially challenging for students residing in more rural areas that lack smooth internet facilities as it ultimately negatively affected their final grades because of the difficulty they encountered with completing the prescribed work (Khawar et al., 2021). The relationship between the levels of satisfaction with online classes in the presence of psychological distress was also a research objective in some studies which revealed that there was a negative relationship between the two variables. An increase in psychological distress led to, in most cases, a decrease in the satisfaction with online classes (Khawar et al., 2021).

The socio-economic status of students was also an important predictor of psychological distress, as many research studies have found, and more students from low socio-economic backgrounds reported increased levels of anxiety and stress compared to those from higher statuses (Khawar et al., 2021).

There are some studies that investigated the coping strategies employed by university students by comparing various socio-demographic variables such as age, gender, level and field of study (Kamaludin et al., 2020), while other researchers investigated the psychological protective variables, such as resilience, in the students that promote modulation of the emotional disturbances influenced by the adverse circumstances of the pandemic and allows for flexible adaptation to changing conditions such as those posed by the health crisis at hand (Sanchez-Teruel, Robles-Bello & Valencia-Naranjo, 2020). These studies found that, while the majority of female students who participated in the studies coped more adaptively, a majority of the male students adopted negative coping strategies such as substance use and avoidance behaviors in dealing with the coronavirus disease (Kamaludin et al., 2020).

As confirmed by numerous studies, there is generally a high incidence of psychological disorders among university students and with the added psychological pressure brought about by the uncertainty associated with the public health crisis at hand, students may engage in more rumination which may in turn increase their risk for developing a number of long term negative psychological outcomes (Ye, Wu, Im, Liu, Wang & Yang, 2020).

The implementation of appropriate psychological interventions, strategies and precautionary measures is of utmost importance to help minimize the psychological distress of university students during this unprecedented time (Khawar et al., 2021). Psychological and social support have been proven to play major roles as protective factors that buffer the adverse impacts of stress, anxiety and depression in times of pandemics and can help students shift their attention to positive things while simultaneously reducing negative thoughts (Ye et al., 2020).

CHAPTER THREE– METHODOLOGY

3.1 Introduction

This chapter describes the methods used to conduct the research study. Areas of interest that will be discussed include the research design, the sample selection and study setting, the data collection tool along with its analysis and the ethical considerations.

3.2 Research Design

This was a quantitative and explorative contextual study which was performed at the University of Johannesburg. It made use of non-probability, voluntary response sampling.

3.3 Selection and Study Setting

3.3.1 Sample selection and sample size

The participants were all the Diploma in Sport Management students registered at the University of Johannesburg. They were recruited via email which contained a link to the survey. The email was distributed among the students by the class representatives of each academic year. A total number of 318 participants were recruited. That number comprised of 157 first year students, 94 second year students and 67 third year students. From that total amount at least 100 students had to have participated in the survey to make the study valid.

3.3.2 Inclusion criteria

To have been included in the study the participants had to meet the following inclusion criteria:

- All students had to have been enrolled to study Diploma in Sport Management, in academic years one to three, at UJ.
- Students had to be 18 years of age or older.
- Students who were willing to participate in the study.

3.3.3 Exclusion criteria

Participants were excluded from the study if they met any of the following exclusion criteria:

- Any student that was not enrolled to study Diploma in Sport Management, in academic years one to three, at the University of Johannesburg.
- Any student that was not willing to take part in the study.

3.3.4 Study setting

Permission to allow the students to take part in this research was requested from the Head of Department of Diploma in Sport Management, Mrs Heather Morris-Eyton (Appendix A). After obtaining ethical clearance from the Research Ethics Committee (Appendix B) as well as approval from the Higher Degrees Committee (Appendix C), permission was also requested from Dr C Nonkwelo who runs the Division of Institutional Planning, Evaluation and Monitoring at the University of Johannesburg (Appendix D). Each participant who met the inclusion criteria received the email which contained an information letter (Appendix E) explaining the process and purpose of the study as well as a consent form (Appendix F) which they had to complete before commencing with the questionnaire (Appendix G).

All participants who took part in this particular study were requested to read both the information and consent forms (Appendix E and F, respectively) specific to this study. The participants gave their consent by clicking on the “Agree and continue with survey” after having read the information letter. They were then able to complete the survey which took approximately 15 minutes.

The participants were made aware that their participation was voluntary and confidential, and that they were allowed to withdraw from the study at any point prior to submission of the questionnaire. They received no remuneration for their participation.

The research participants' anonymity was maintained as no names were recorded at any point during the questionnaire. Only the researcher had access to the responses of the questionnaire.

3.4 Data Collection Tool

3.4.1 DASS-42 questionnaire

The Depression Anxiety Stress Scales (DASS) was employed for this study and was used to assess symptoms of depression, anxiety and stress. There were three self-report sub-scales contained within the questionnaire which were designed to provide relatively accurate measurements of depression, anxiety and stress (Tran, Tran & Fischer, 2013). There were fourteen items contained within each of the three sub-scales (Tran et al., 2013). Feelings of hopelessness, lack of interest and self-deprecation were assessed with the depression scale, while the anxiety scale assessed skeletal muscle effect and autonomic arousal. The stress scale assessed feelings of impatience, agitation and nervous arousal (Tran et al., 2013). The DASS questionnaire was arranged on a Likert scale ranging from zero (0-“did not apply to me at all”) to three (3- “applied to me very much”). The scoring key for the DASS scale (Appendix H) indicated how the scores were obtained by each participant.

A pilot study was conducted on 10 chiropractic students who were in the Master’s level of their studies prior to distributing the survey to the various class representatives of the Sport Management students.

The participants were also asked questions pertaining to their age, gender, possible financial difficulties during the national lockdown period extending to the present time and academic year of studies in section A of the survey. Section B of the survey was the DASS-42 questionnaire. The researcher made use of the QuestionPro online survey platform to set up the survey.

3.5 Data Analysis

The data was collected by the researcher and captured on a Microsoft Excel document. A statistician from STATKON of the University of Johannesburg advised and assisted the researcher with the analysis of the collected data.

The analysis included frequencies as well as descriptive statistics such as standard deviations, percentages, means, counts, minimum and maximum values. With sample sizes greater than 100

Confirmatory Factor Analysis (CFA) were done, whereas for sample sizes of less than 100 only Reliabilities were done (Cronbach's Alpha). The scores of each sub-scale of the DASS instrument had Descriptive Statistics applied to it. Normality and Comparisons were employed to compare the students at their different academic levels. The Kolmogorov-Smirnov test or the Shapiro Wilk test were used for normality testing, depending on the sample size. The independent-sample T-test or Mann-Whitney test was used for the comparison of groups which depended on normality.

3.6 Validity and Reliability

The Dass-42 tool was found to be one of the best at assessing stress, depression and anxiety levels in individuals (Sameer, Nissar & Banday 2020). There is evidence of the validation for the use and reliability of the DASS-42 tool in both community as well as clinical settings (Tran et al., 2013).

3.7 Ethical Considerations

All participants who took part in this particular study were requested to read both the information and consent forms (Appendix E and F, respectively) specific to this study. The participants gave their consent by clicking on the "Agree and continue with survey" after having read the information letter. They were then able to complete the survey (Appendix G) which took approximately 15 minutes.

The information and consent forms outlined the name of the researcher, purpose of the study and benefits of taking part in the study. It also explained that the participants' privacy would be protected by ensuring anonymity and confidentiality when compiling the research dissertation. They were informed that no identifying data was collected and that their responses could not be traced back to them which ensured their anonymity. The participants were made aware that their participation was voluntary and that they were free to withdraw from the study at any point prior to the submission of the questionnaire. Beyond this point, withdrawal from the study was not possible due to the anonymous nature of the research.

A benefit of this study was that participants who were at severe or extremely severe risk for depression, anxiety or stress were alerted and advised to seek the much needed help they required to assist them in coping with the pressure. This study posed no risks to the participants as it was an online questionnaire and could be completed by the participants in their own time.

The participants were advised to contact Ms Mbalenhle Gumbi, who is a professional counsellor at the Centre for Psychological Services and Career Development (PsyCad) at UJ if their scores from the DASS-42 questionnaire indicated that they were in need of psychological assistance. The need for psychological assistance was indicated by the participants' results being in the "severe" range on the scoring key for the DASS scale. Her contact details were outlined at the end of the questionnaire on the scoring key for the DASS scale. She could be contacted via email at mbalenhle@uj.ac.za or via phone on 011 559 5752.

This study was approved by the Faculty of Health Sciences Higher Degrees Committee (HDC) (Appendix C) and the Research Ethics Committee (REC) (Appendix B).



CHAPTER FOUR – RESULTS

4.1 Introduction

The empirical findings and the analysis of the data collected by the researcher via the DASS-42 questionnaire, which assessed the psychological responses concerning depression, stress and anxiety during the coronavirus (covid-19) pandemic among the Sport Management students at UJ, is presented in this chapter.

4.2 Descriptive Statistics for Demographics

A total of 102 (n=102) Sport Management students participated in this study. The demographic details of these participants will be presented and discussed in this section.

4.2.1 Age distribution

The collected data revealed that of the total number of participants (n=102) that completed the survey, 95.1% (n=97) were between 18-24 years old, 3.9% (n=4) were between 25-29 years old and 1% (n=1) participant was between 30-34 years old. This data is presented below in table 4.1.

Table 4.1: Frequency distribution for age

Age	Frequency	Percent	Valid percent	Cumulative percent
18-24 years old	97	95.1	95.1	95.1
25-29 years old	4	3.9	3.9	99.0
30-34 years old	1	1.0	1.0	100.0
Total	102	100.0	100.0	

4.2.2 Gender distribution

The study consisted of 40.2% (n=41) male and 59.8% (n=61) female student participants. Table 4.2 presents this data below.

Table 4.2: Frequency distribution for gender

Gender	Frequency	Percent	Valid percent	Cumulative percent
Male	41	40.2	40.2	40.2
Female	61	59.8	59.8	100.0
Total	102	100.0	100.0	

4.2.3 Academic year distribution

According to the collected data, majority of the participants were in the first academic year of the Diploma program. Of the total n=102 participants, 62.7% (n=64) were in the first academic year, while 21.6% (n=22) and 14.7% (n=15) of the participants were in the second and third academic years, respectively. One of the respondents failed to provide the answer to this question and there is therefore one response marked as “missing”. The academic year distribution data is presented below in table 4.3.

Table 4.3: Frequency distribution for academic year

	Academic year	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 st year	64	62.7	63.4	63.4
	2 nd year	22	21.6	21.8	85.1
	3 rd year	15	14.7	14.9	100.0
	Total	101	99.0	100.0	
Missing	System	1	1.0	100.0	
Total		102	100.0		

4.2.4 Financial difficulties

As shown by the data presented in table 4.4 below, 46.1% (n=47) of the total participants stated that they had financial difficulties during the national lockdown period. The participants who stated that they did not have any financial difficulties made up 16.7% (n=17) of the total sample, while 37.3% (n=38) stated that they experienced financial difficulties sometimes.

Table 4.4: Frequency distribution for financial difficulties during national lockdown to present

Financial Difficulties	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	47	46.1	46.1	46.1
No	17	16.7	16.7	62.7
Sometimes	38	37.3	37.3	100.0
Total	102	100.0	100.0	

4.2.5 Marital status

The collected data indicates that a large majority of the participants, 99% (n=101), were single while 1% (n=1) was divorced. Table 4.5 presents the data below.

Table 4.5: Frequency distribution for marital status

Marital status	Frequency	Percent	Valid Percent	Cumulative Percent
Single	101	99.0	99.0	99.0
Divorced	1	1.0	1.0	100.0
Total	102	100.0	100.0	

4.3 Results

4.3.1 DASS questionnaire responses

The descriptive statistical results relating to the DASS-42 questionnaire are discussed in this section of the chapter. The result of the DASS-42 questionnaire are presented by table 4.6 below. The questionnaire consisted of 42 questions which were answered by all the n=102 participants. Each question had four options to choose from and the participants chose the responses depending on how much or how little the question at hand related to them. The possible responses were:

- 0 – Did not apply to me at all.
- 1 – Applied to me to some degree or some of the time.

- 2 – Applied to me to a considerable degree or a good part of the time.
- 3 – Applied to me very much or most of the time.

Table 4.6: DASS-42 questionnaire responses

	Did not apply to me at all	Applied to me to some degree or some of the time	Applied to me to a considerable degree, or a good part of the time	Applied to me very much, or most of the time	Total
B1 I found myself getting upset by quite trivial things	28	52	13	9	102
	27.5%	51.0%	12.7%	8.8%	100.0%
B2 I was aware of dryness of my mouth	63	15	15	9	102
	61.8%	14.7%	14.7%	8.8%	100.0%
B3 I couldn't seem to experience any positive feeling at all	33	35	15	19	102
	32.4%	34.3%	14.7%	18.6%	100.0%
B4 I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	75	13	9	5	102
	73.5%	12.7%	8.8%	4.9%	100.0%
B5 I just couldn't seem to get going	43	34	10	15	102
	42.2%	33.3%	9.8%	14.7%	100.0%
B6 I tended to over-react to situations	33	34	20	15	102
	32.4%	33.3%	19.6%	14.7%	100.0%

B7 I had a feeling of shakiness (eg, legs going to give way)	72	13	9	8	102
	70.6%	12.7%	8.8%	7.8%	100.0%
B8 I found it difficult to relax	39	34	17	12	102
	38.2%	33.3%	16.7%	11.8%	100.0%
B9 I found myself in situations that made me so anxious I was most relieved when they ended	22	38	19	23	102
	21.6%	37.3%	18.6%	22.5%	100.0%
B10 I felt that I had nothing to look forward to	34	31	16	21	102
	33.3%	30.4%	15.7%	20.6%	100.0%
B11 I found myself getting upset rather easily	29	40	20	13	102
	28.4%	39.2%	19.6%	12.7%	100.0%
B12 I felt that I was using a lot of nervous energy	39	29	15	19	102
	38.2%	28.4%	14.7%	18.6%	100.0%
B13 I felt sad and depressed	33	27	19	23	102
	32.4%	26.5%	18.6%	22.5%	100.0%
B14 I found myself getting impatient when I was delayed in any way (eg, elevators, traffic lights, being kept waiting)	40	32	12	18	102
	39.2%	31.4%	11.8%	17.6%	100.0%
B15 I had a feeling of faintness	80	11	6	5	102
	78.4%	10.8%	5.9%	4.9%	100.0%
B16 I felt that I had lost interest in just about everything	44	28	15	15	102
	43.1%	27.5%	14.7%	14.7%	100.0%
B17 I felt I wasn't worth much as a person	40	30	10	22	102

	39.2%	29.4%	9.8%	21.6%	100.0%
B18 I felt that I was rather touchy	64	23	4	11	102
	62.7%	22.5%	3.9%	10.8%	100.0%
B19 I perspired noticeably (eg, hands sweaty) in the absence of high temperatures or physical exertion	79	12	6	5	102
	77.5%	11.8%	5.9%	4.9%	100.0%
B20 I felt scared without any good reason	53	25	7	17	102
	52.0%	24.5%	6.9%	16.7%	100.0%
B21 I felt that life wasn't worthwhile	55	28	7	12	102
	53.9%	27.5%	6.9%	11.8%	100.0%
B22 I found it hard to wind down	60	28	6	8	102
	58.8%	27.5%	5.9%	7.8%	100.0%
B23 I had difficulty in swallowing	89	9	2	2	102
	87.3%	8.8%	2.0%	2.0%	100.0%
B24 I couldn't seem to get any enjoyment out of the things I did	42	38	12	10	102
	41.2%	37.3%	11.8%	9.8%	100.0%
B25 I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	53	23	13	13	102
	52.0%	22.5%	12.7%	12.7%	100.0%
B26 I felt down-hearted and blue	56	24	16	6	102
	54.9%	23.5%	15.7%	5.9%	100.0%
B27 I found that I was very irritable	41	37	16	8	102
	40.2%	36.3%	15.7%	7.8%	100.0%

B28 I felt I was close to panic	51	26	15	10	102
	50.0%	25.5%	14.7%	9.8%	100.0%
B29 I found it hard to calm down after something upset me	45	32	13	12	102
	44.1%	31.4%	12.7%	11.8%	100.0%
B30 I feared that I would be "thrown" by some trivial but unfamiliar task	51	30	9	12	102
	50.0%	29.4%	8.8%	11.8%	100.0%
B31 I was unable to become enthusiastic about anything	43	42	5	12	102
	42.2%	41.2%	4.9%	11.8%	100.0%
B32 I found it difficult to tolerate interruptions to what I was doing	43	29	15	15	102
	42.2%	28.4%	14.7%	14.7%	100.0%
B33 I was in a state of nervous tension	48	29	14	11	102
	47.1%	28.4%	13.7%	10.8%	100.0%
B34 I felt I was pretty worthless	50	29	11	12	102
	49.0%	28.4%	10.8%	11.8%	100.0%
B35 I was intolerant of anything that kept me from getting on with what I was doing	47	35	12	8	102
	46.1%	34.3%	11.8%	7.8%	100.0%
B36 I felt terrified	55	25	10	12	102
	53.9%	24.5%	9.8%	11.8%	100.0%
B37 I could see nothing in the future to be hopeful about	46	30	13	13	102
	45.1%	29.4%	12.7%	12.7%	100.0%

B38 I felt that life was meaningless	53	25	9	15	102
	52.0%	24.5%	8.8%	14.7%	100.0%
B39 I found myself getting agitated	44	40	9	9	102
	43.1%	39.2%	8.8%	8.8%	100.0%
B40 I was worried about situations in which I might panic and make a fool of myself	38	27	15	22	102
	37.3%	26.5%	14.7%	21.6%	100.0%
B41 I experienced trembling (eg, in the hands)	62	25	5	10	102
	60.8%	24.5%	4.9%	9.8%	100.0%
B42 I found it difficult to work up the initiative to do things	36	33	14	19	102
	35.3%	32.4%	13.7%	18.6%	100.0%

4.3.2 Summary of results

The results relating to the DASS-42 questionnaire (table 4.6) have been summarized in this section. The questions were ordered based on the mean scores for depression, anxiety and stress. The mean score is the average based on the scale between 0-3 for each question and also shows where the majority of the answers were chosen. They were arranged from the highest to the lowest mean score in each category and each was reported with the corresponding standard deviation.

Tables 4.7, 4.8 and 4.9 present the mean scores with the standard deviations for each category.

Table 4.7: Depression mean scores (highest to lowest)

Question	Mean Value	Standard Deviation
B13	1.31	1.152
B10	1.24	1.127
B3	1.20	1.090
B42	1.16	1.106
B17	1.14	1.161
B16	1.01	1.085
B5	0.97	1.057
B37	0.93	1.046
B24	0.90	0.960
B31	0.86	0.965
B38	0.86	1.090
B34	0.85	1.028
B21	0.76	1.016
B26	0.73	0.935

B13 – “I felt sad and depressed” – had a mean value of 1.31. This applied very much to 22.5% (n=23) of the participants who experienced these emotions most of the time, while 26.5% (n=27) experienced this to some degree or some of the time and 32.4% (n=33) did not feel this at all.

B10 – “I felt that I had nothing to look forward to” – had a mean value of 1.24. The feeling was experienced very much or most of the time by 20.6% (n=21) of the participants, while 30.4% (n=31) felt this to some degree or some of the time and 33.3% (n=34) did not experience this at all.

B3 – “I couldn’t seem to experience any positive feeling at all” – had a mean value of 1.20. This applied to some degree or some of the time to 34.3% (n=35) of the participants, while this did not apply to 32.4% (n=33) of the participants.

B42 – “I found it difficult to work up the initiative to do things” – had a mean value of 1.16. This applied very much or most of the time to 18.6% (n=19) of the participants, while 32.4% (n=33) of them experienced this to some degree or some of the time and 35.3% (n=36) did not experience this at all.

B17 – “I felt I was not worth much as a person” – had a mean value of 1.14. This was reported to have been experienced very much or most of the time by 21.6% (n=22) of the respondents, to some degree or some of the time by 29.4% (n=30) and not at all experienced by 39.2% (n=40) of the participants.

B16 – “I felt that I had lost interest in just about everything” – had a mean value of 1.01. This applied to 27.5% (n=28) of participants to some degree or some of the time, while 43.1% (n=44) were of the opinion that this did not apply to them at all.

B5 – “I just couldn’t seem to get going” – had a mean value of 0.97. While 33.3% (n=34) of the participants reported to have experienced this to some degree or some of the time, 42.2% (n=43) of them stated that this did not apply to them at all.

B37 – “I could see nothing in the future to be hopeful about” – had a mean value of 0.93. It was reported to have applied to 29.4% (n=30) of the participants to some degree or some of the time, while it did not apply at all to 45.1% (n=46) of the participants.

B24 – “I couldn’t seem to get any enjoyment out of the things I did” – had a mean value of 0.90. This feeling was experienced to some degree or some of the time by 37.3% (n=38) of the participants, while 41.2% (n=42) were not affected in this manner at all.

B31 – “I was unable to become enthusiastic about anything” – had a mean value of 0.86. It applied to some degree or some of the time in 41.2% (n=42) of the participants, while 42.2% (n=43) stated that they did not experience this at all.

B38 – “I felt that life was meaningless” – had a mean value of 0.86. This applied very much or most of the time to 14.7% (n=15) of the participants, while 24.5% (n=25) of them found this to apply to them to some degree or some of the time and 52% (n=53) of them found that this did not apply to them at all.

B34 – “I felt I was pretty worthless” – had a mean value of 0.85. It was reported to have applied very much or most of the time to 11.8% (n=12) of the respondents, while 28.4% (n=29) found this to be true to some degree or some of the time and 49% (n=50) found that this did not apply to them at all.

B21 – “I felt that life wasn’t worthwhile” – had a mean value of 0.76. This was experienced by 27.5% (n=28) of the participants to some degree or some of the time, while 53.9% (n=55) reported that this did not apply to them at all.

B26 – “I felt down-hearted and blue” – had a mean value of 0.73. This feeling was experienced to some degree or some of the time by 23.5% (n=24) of the participants and did not apply at all to 54.9% (n=56) of them.

Table 4.8: Stress mean scores (highest to lowest)

Question	Mean Value	Standard Deviation
B6	1.17	1.044
B11	1.17	0.986
B12	1.14	1.126
B14	1.08	1.105
B1	1.03	0.873
B8	1.02	1.015
B32	1.02	1.081
B29	0.92	1.021
B27	0.91	0.935
B33	0.88	1.018
B39	0.83	0.924
B35	0.81	0.931
B18	0.63	0.984
B22	0.63	0.911

B6 – “I tended to over-react to situations” – had a mean value of 1.17. While this applied to 33.3% (n=34) of participants to some degree or some of the time, it did not apply to 32.4% (n=33) of the participants at all.

B11 – “I found myself getting upset rather easily” – had a mean value of 1.17. This was experienced to a considerable degree or a good part of the time by 20.6% (n=21) of the participants, while 39.2% (n=40) felt this to some degree or some of the time and 28.4% (n=29) of them did not experience this at all.

B12 – “I felt that I was using a lot of nervous energy” – had a mean value of 1.14. While this did not apply at all to 38.2% (n=39) of the participants, 28.4% (n=29) of them felt that this applied to them to some degree or some of the time.

B14 – “I found myself getting impatient when I was delayed in any way” – had a mean value of 1.08. The feeling was experienced by 31.4% (n=32) of the participants to some degree or some of the time while 39.2% (n=40) did not experience this at all.

B1 – “I found myself getting upset by quite trivial things” – had a mean value of 1.03. This applied to 51% (n=52) of the participants to some degree or some of the time, while it did not apply to 27.5% (n=28) of them at all.

B8 – “I found it difficult to relax” – had a mean value of 1.02. This was experienced to some degree or some of the time by 33.3% (n=34) of the participants, while it did not apply at all to 38.2% (n=39) of the participants.

B32 – “I found it difficult to tolerate interruptions to what I was doing” – had a mean value of 1.02. It was reported to have been experienced by 28.4% (n=29) of the participants to some degree or some of the time, while those who were not affected by this at all made up 42.2% (n=43) of the total participants.

B29 – “I found it hard to calm down after something upset me” – had a mean value of 0.92. This was reported to have been experienced to some degree or some of the time by 31.4% (n=32) of the respondents, while 44.1% (n=45) did not experience this at all.

B27 – “I found that I was very irritable” – had a mean value of 0.91. While 36.3% (n=37) of the respondents found this to apply to them to some degree or some of the time, 40.2% (n=41) of them did not have this experience at all.

B33 – “I was in a state of nervous tension” – had a mean value of 0.88. This was reported to have been experienced to some degree or some of the time by 28.4% (n=29) of the respondents, while 47.1% (n=48) stated that this did not apply to them at all.

B39 – “I found myself getting agitated” – had a mean value of 0.83. While this did not apply at all to 43.1% (n=42) of the respondents, 39.2% (n=40) of them reported that this applied to them to some degree or some of the time.

B35 – “I was intolerant of anything that kept me from getting on with what I was doing” – had a mean value of 0.81. This applied to 34.3% (n=35) of respondents to some degree or some of the time, while 46.1% (n=47) stated that they did not experience this.

B18 – “I felt that I was rather touchy” – had a mean value of 0.63. This was experienced to some degree or some of the time by 22.5% (n=23) of the participants, while 62.7% (n=64) reported that this did not apply to them at all.

B22 – “I found it hard to wind down” – had a mean value of 0.63. This was reported to have been experienced to some degree or some of the time by 27.5% (n=28) of the respondents, while 58.8% (n=60) reported that they did not experience this at all.

Table 4.9: Anxiety mean scores (highest to lowest)

Question	Mean Value	Standard Deviation
B9	1.42	1.066
B40	1.12	1.163
B20	0.88	1.120
B25	0.86	1.072
B28	0.84	1.012
B30	0.82	1.019
B36	0.79	1.037
B2	0.71	1.020
B41	0.64	0.963
B7	0.54	0.951
B4	0.45	0.852
B19	0.38	0.809
B15	0.37	0.807
B23	0.19	0.558

B9 – “I found myself in situations that made me so anxious I was most relieved when they ended” – had a mean value of 1.42. While 22.5% (n=23) of the participants stated that this applied to them very much or most of the time, 37.3% (n=38) of them stated that it applied to them to some degree or some of the time and 21.6% (n=22) of the participants felt that this did not apply to them at all.

B40 – “I was worried about situations in which I might panic and make a fool of myself” – had a mean value of 1.12. This applied very much or most of the time to 21.6% (n=22) of the respondents, while it applied to 26.5% (n=27) of them to some degree or some of the time and did not apply at all to 37.3% (n=38) of the participants.

B20 – “I felt scared without any good reason” – had a mean value of 0.88. This was experienced very much or most of the time by 16.7% (n=17) of the respondents, to some degree or some of the time by 24.5% (n=25) of them, while 52% (n=53) did not experience this at all.

B25 – “I was aware of the action of my heart in absence of physical exertion” – had a mean value of 0.86. It was reported to have been experienced to some degree or some of the time by 22.5% (n=23) of the respondents, while 52% (n=53) reported to not have experienced this at all.

B28 – “I felt like I was close to panic” – had a mean value of 0.84. This was reported to have been experienced to some degree or some of the time by 25.5% (n=26) of the respondents and 50% (n=51) responded that this did not apply to them at all.

B30 – “I feared that I would be “thrown” by some trivial but unfamiliar task” – had a mean value of 0.82. While 50% (n=51) participants reported that they did not have this experience, 29.4% (n=30) of them responded that they had this fear to some degree or some of the time.

B36 – “I felt terrified” – had a mean value of 0.79. This applied very much or most of the time to 11.8% (n=12) of the participants, while 53.9% (n=55) claim to not have experienced this at all and 24.5% (n=25) report to experience this to some degree or some of the time only.

B2 – “I was aware of dryness of my mouth” – had a mean value of 0.71. This was not experienced by 61.8% (n=63) of the participants, while 14.7% (n=15) of them experienced this to some degree or some of the time.

B41 – “I experienced trembling” – had a mean value of 0.64. While 60.8% (n=62) of the respondents did not experience trembling, 24.5% (n=25) of them reported to having experienced trembling to some degree or some of the time.

B7 – “I had a feeling of shakiness” – had a mean value of 0.54. This was not at all experienced by 70.6% (n=72) of the participants, while 12.7% (n=13) of them experienced this to some degree or some of the time.

B4 – “I experienced breathing difficulty” – had a mean value of 0.45. This was reported to have been experienced to some degree or some of the time by 12.7% (n=13) of the participants, while this did not apply at all to 73.5% (n=75) of the participants.

B19 – “I perspired noticeably in the absence of high temperatures or physical exertion” – had a mean value of 0.38. This was reported to have applied to 11.8% (n=12) of the participants to some degree or some of the time, while it did not apply at all to 77.5% (n=79) of them.

B15 – “I had a feeling of faintness” – had a mean value of 0.37. It applied to some degree or some of the time to 10.8% (n=11) of the participants while this did not apply to 78.4% (n=80) of them at all.

B23 – “I had difficulty in swallowing” – had a mean value of 0.19. This was experienced to some degree or some of the time by 8.8% (n=9) of the participants while the majority, 87.3% (n=89), of them did not experience this at all.

4.3.3 Test for reliability

The internal consistency of the results and whether each question in each category tests for depression, anxiety and stress is what is looked at when assessing reliability. Cronbach's Alpha is used when assessing reliability and its value should be above 0.7 in order for it to be valid. Table 4.10 summarizes the results below.

Table 4.10: Reliability analysis

Construct	No. of items	Cronbach's Alpha
Depression	14	0.935
Anxiety	14	0.894
Stress	14	0.910

The Cronbach's Alpha values in table 4.10 for depression (0.935), anxiety (0.894) and stress (0.910) were all above 0.7 which proves that the results obtained in this study have a high level of internal consistency and are therefore reliable, acceptable and valid.

4.3.4 Depression Anxiety Stress Scale (DASS-42) scoring instructions

The scores for depression, anxiety and stress were calculated by summing the scores for the relevant items.

- Depression scale items: 3, 5, 10, 13, 16, 17, 21, 24, 26, 31, 34, 37, 38 and 42.
- Anxiety scale items: 2, 4, 7, 9, 15, 19, 20, 23, 25, 28, 30, 36, 40 and 41.
- Stress scale items: 1, 6, 8, 11, 12, 14, 18, 22, 27, 29, 32, 33, 35 and 39.

The score for each of the respondents over each of the sub-scales was then evaluated as per the severity-index rating, as presented below in table 4.11.

Table 4.11: DASS severity rating index

	Depression	Anxiety	Stress
Normal	0 - 9	0 - 7	0 - 14
Mild	10 - 13	8 - 9	15 - 18
Moderate	14 - 20	10 - 14	19 - 25
Severe	21 - 27	15 - 19	26 - 33
Extremely Severe	28+	20+	34+

4.3.5 Descriptive statistics for depression, anxiety and stress

Table 4.12 summarizes the average statistics for each category.

Table 4.12: Mean statistics for depression, anxiety and stress

	Mean	Standard Deviation	Minimum	Maximum
Depression	13.92	10.931	0	42
Anxiety	10.11	8.820	0	42
Stress	13.24	9.506	0	42

As shown in table 4.12, the mean value for depression, which represents the average score for depression among the participants, was 13.92. This, according to the DASS severity rating index (table 4.11), indicates that, on average, the participants had mild to moderate depression. The minimum and maximum values indicate that the lowest and highest score a respondent had for depression was 0 and 42, respectively.

The mean value for anxiety, which represents the average score for anxiety among the participants, was 10.11 (table 4.12). According to the DASS severity rating index (table 4.11), this indicates that there was

mild anxiety, on average, among the respondents. The minimum and maximum values indicate that the lowest and highest score a participant had for anxiety was 0 and 42, respectively.

The stress score had a mean value of 13.24 (table 4.12), which according to the DASS severity rating index (table 4.11), indicates that these students had normal stress levels, on average. The minimum and maximum values indicate that the lowest and highest score a participant had for stress was 0 and 42, respectively.

4.3.6 Frequencies for scoring categories

The overall scores for each category is discussed in this section. Table 4.13 represents the frequency scores for depression.

Table 4.13: Frequencies for depression category

Depression	Frequency	Percent	Valid Percent	Cumulative Percent
Normal	42	41.2	41.2	41.2
Mild	16	15.7	15.7	56.9
Moderate	16	15.7	15.7	72.5
Severe	14	13.7	13.7	86.3
Extremely Severe	14	13.7	13.7	100.0
Total	102	100.0	100.0	

According to the data presented in table 4.13, 41.2% (n=42) of the participants had normal levels, while 15.7% (n=16) of the participants had mild depression, another 15.7% (n=16) had moderate depression, 13.7% (n=14) had severe depression and 13.7% (n=14) had extremely severe depression.

Table 4.14 below represents the frequency scores for anxiety.

Table 4.14: Frequencies for anxiety category

Anxiety	Frequency	Percent	Valid Percent	Cumulative Percent
Normal	50	49.0	49.0	49.0
Mild	11	10.8	10.8	59.8
Moderate	13	12.7	12.7	72.5
Severe	10	9.8	9.8	82.4
Extremely Severe	18	17.6	17.6	100.0
Total	102	100.0	100.0	

Table 4.14 indicates that 49.0% (n=50) of the respondents had normal levels, while 10.8% (n=11) had mild anxiety, 12.7% (n=13) had moderate levels of anxiety, 9.8% (n=10) experienced severe anxiety and 17.6% (n=18) of the respondents experienced extremely severe anxiety.

Table 4.15 below presents the frequency scores for stress.

Table 4.15: Frequencies for stress category

Stress	Frequency	Percent	Valid Percent	Cumulative Percent
Normal	61	59.8	59.8	59.8
Mild	15	14.7	14.7	74.5
Moderate	12	11.8	11.8	86.3
Severe	11	10.8	10.8	97.1
Extremely Severe	3	2.9	2.9	100.0
Total	102	100.0	100.0	

As indicated in table 4.15, 59.8% (n=61) of the participants had normal stress levels, 14.7% (n=15) had mild stress levels, 11.8% (n=12) experienced moderate stress, 10.8% (n=11) had severe stress and 2.9% (n=3) of the participants experienced extremely severe stress.

4.3.7 Tests for normality

The Kolmogorov-Smirnov and Shapiro-Wilk tests were used to assess normality. The Shapiro-Wilk test was used when the group size was less than 50, while the Kolmogorov-Smirnov test was used when the group size was larger than 50.

The results are summarized below in table 4.16.

Table 4.16: Normality tests for gender

		Kolmogorov-Smirnov			Shapiro-Wilk		
		Statistic	df	Sig. (p-value)	Statistic	df	Sig. (p-value)
Depression	Male				0.903	41	0.002
	Female	0.156	61	0.001			
Anxiety	Male				0.874	41	0.000
	Female	0.168	61	0.000			
Stress	Male				0.904	41	0.002
	Female	0.115	61	0.042			

The data which indicated whether or not depression, anxiety and stress were normally distributed among the males and females separately is presented in table 4.16 above. The Kolmogorov-Smirnov test was used to assess the distribution among females as the number of female respondents was more than 50 (df=61). Due to the fact that the male respondents were less than 50 (df=41), the Shapiro-Wilk test was used to assess the distribution among them. A p-value of greater than 0.05 indicated that the data followed a normal distribution, while a p-value of less than 0.05 indicated that the data did not follow a normal distribution.

Table 4.16 shows that the p-values that were obtained for the females were 0.001 for depression, 0.000 for anxiety and 0.042 for stress. All these p-values were less than 0.05 which means that the data did not follow a normal distribution.

The p-values that were obtained for the males were 0.002 for depression, 0.000 for anxiety and 0.002 for stress. These p-values were also all less than 0.05 which also indicated that the data did not follow a normal distribution.

4.3.8 Comparison between groups

Parametric tests were used for the comparisons between groups. Although most of the data did not follow a normal distribution, parametric tests work well for deviations from normal. The group sizes were also large enough to use parametric tests.

Comparisons for gender

Table 4.17 presents the data for the comparison between genders. The independent samples T-test was used because two groups were being compared – males and females.

Table 4.17: Gender comparison for depression, anxiety and stress

		N	Mean	Std. Deviation	Std. Error Mean
Depression	Male	41	11.71	10.194	1.592
	Female	61	15.41	11.236	1.439
Anxiety	Male	41	7.54	7.417	1.158
	Female	61	11.84	9.313	1.192
Stress	Male	41	11.20	9.220	1.440
	Female	61	14.61	9.522	1.219

Table 4.17 indicates that the mean score for depression among the male respondents was 11.71, while that of the female respondents was 15.41. When using the DASS-42 severity rating index (table 4.11) to interpret these mean scores, it is shown that on average, the male respondents experienced mild depression while the females experienced moderate levels of depression.

For anxiety, the male respondents had a mean score of 7.54 while the females had a mean score of 11.84. This, when interpreting with the DASS-42 severity rating index (table 4.11) shows that the males had normal to mild levels of anxiety, while the females had moderate anxiety levels.

The mean stress scores for the male respondents was 11.20, while the females had a mean stress score of 14.61. The DASS-42 severity rating index (table 4.11) indicates this as normal stress levels among the males, while there were normal to mild stress levels experienced by the females on average.

When trying to determine whether or not the answers are distributed similarly, Levene's test for equality of variances for depression, anxiety and stress is used. Table 4.18 presents the data for this test below.

Table 4.18: Levene's test for equality of variances for depression, anxiety and stress

Levene's Test for Equality of Variances			
		F	Sig. (p-value)
Depression	Equal variances assumed	0.083	0.774
Anxiety	Equal variances assumed	2.914	0.091
Stress	Equal variances assumed	0.000	1.000

Table 4.18 shows that the p-values for depression (0.774), anxiety (0.091) and stress (1.000) are all greater than 0.05 indicating that equal variances are assumed between males and females for all three.

The T-test is used to determine whether there are significant statistical differences between the scores for males and females. The data for the T-test is presented below in table 4.19.

Table 4.19: T-test for equality of means

T-test for Equality of Means			
	t	df (degrees of freedom)	Sig. (p-value)
Depression	-1.693	100	0.094
Anxiety	-2.474	100	0.015
Stress	-1.797	100	0.075

Table 4.19 shows that the p-values for depression (0.094) and stress (0.075) are both greater than 0.05 which means that there was no significant statistical difference between the scores for males and females for depression and stress. The p-value for anxiety is 0.015 which is less than 0.05 which indicates that there is a significant statistical difference between the scores for males and females for anxiety.

CHAPTER FIVE – DISCUSSION

5.1 Introduction

The results and the information obtained from the data analysis, as presented in chapter four, will be further discussed in this chapter. The data analysis led to the identification of four questions which will be discussed in this section. The questions are as follows:

1. What is the psychological impact concerning depression, anxiety and stress during the coronavirus (covid-19) disease pandemic among the Sport Management students at UJ?
2. How does gender influence the level of psychological impact?
3. Are psychological intervention strategies necessary?
4. What psychological intervention strategies are available?

New information and findings obtained from the data analysis of this study as well as findings and views of other studies will be included in this discussion.

5.2 Response Rate

The University of Johannesburg currently has 318 students enrolled in the Sport Management Diploma program. Of these 318 students, a total of 102 students took part in the study by answering the questionnaire which was distributed to them. The 102 responses gives the study a response rate of 32%.

No study of this kind has been conducted on Sport Management students, to the researcher's knowledge, similar studies have been conducted by Graupensperger, Benson, Kilmer & Evans (2020), in the United States, Washington, on teammate interactions, athletic identity and mental health of student-athletes during the covid-19 pandemic as well as by Pankow, McHugh, Mosewich & Holt (2021), in Canada, on mental health protective factors among flourishing Canadian women University student-athletes. The two studies each had a response rate of 57.69% and 63%, respectively. Although it is evident that the response rate of the current study is below that of international standards, it is still acceptable according to statistical standards (Pankow et al., 2021).

5.3 Research Question 1: What is the psychological impact concerning depression, anxiety and stress during the coronavirus (covid-19) disease pandemic among the Sport Management students at UJ?

Aside from affecting an individual's daily routine (Khawar et al., 2021), public health emergencies such as the current covid-19 pandemic not only affect the individual's psychological state in the short term, but also their mental health in the long term (Kamaludin et al., 2020). Studies that were conducted soon after the outbreak of the pandemic showed remarkable prevalence of depression, anxiety, stress, post-traumatic stress disorder and insomnia among the general populations that were being studied (Ye et al., 2020). The individuals who had experienced physical symptoms from the virus were 2 - 3 times more likely to experience the negative psychological symptoms (Ye et al., 2020). University students, being naturally more exposed to social media than other age groups, have been shown to be a vulnerable group susceptible to mental health problems (Kamaludin et al., 2020). Owing to the fact that the influence of major events like the pandemic on the mental health of university students is generally understudied (Khawar et al., 2021), this study examined the psychological effects concerning depression, stress and anxiety among the Sport Management students at UJ during the pandemic.

The following results were presented in table 4.12 in chapter four: The mean value for depression was 13.92, while that for anxiety and stress were 10.11 and 13.24, respectively. Depression had the highest mean value, which was followed by stress and then anxiety with the lowest mean value. When these mean values were interpreted by looking at the DASS-42 severity rating index presented in table 4.11, it was evident that, while the mean value for stress was within normal limits, the mean value for depression was in the mild category, while the anxiety mean value was in the moderate category. This indicated that the Sport Management students experienced mild depression with moderate anxiety and normal levels of stress.

To the researcher's knowledge, no previous study has been conducted on the Sport Management students at the University of Johannesburg to investigate the psychological impact of the present pandemic on this group. This study, however, has similar findings to a study which was conducted investigating the immediate psychological responses during the initial period of the covid-19 pandemic among Bangladeshi medical students (Safa et al., 2020). The similarities of the findings in both studies may be explained by the fact that both, besides being university students, were groups with heightened risks of certain mental health problems due to the increased levels of pressure (Graupensperger et al.,

2020), with the particularly demanding academic program of the medical students (Safa et al., 2020) and the threatened careers of the Sport Management students owing to the cancelation of the sport competitive seasons which makes the future look very uncertain (Graupensperger et al., 2020).

5.4 Research Question 2: How does gender influence the psychological impact?

5.4.1 Gender

From the total number of Sport Management students (n=102) that participated in this study, the majority of participants were female n=61, while the males were n=41.

The group statistics for the comparison between genders is presented in table 4.17. The mean values for depression, anxiety and stress for each gender was interpreted using the DASS-42 severity rating index in table 4.11. The interpretations are discussed below.

Depression

The values seen in table 4.17 indicated that the males experienced mild depression while the females experienced moderate depression.

Anxiety

The interpretation of the values in table 4.17 showed that, while females experienced moderate anxiety levels, the males had normal levels of anxiety.

Stress

The values in table 4.17 indicated that both males and females experienced normal stress levels.

The results shown in table 4.17 in chapter four indicate that, while both genders experienced normal levels of stress, the females experienced slightly higher levels of depression and anxiety than the males. The T-test for equality of means, presented in table 4.19, revealed that there was no statistically significant difference in the scores for depression and stress between males and females, although there was a statistically significant difference in the scores for anxiety between males and females, with that of the females being higher.

A research study conducted by Wenjuan, Siqing & Xinqiao (2020), in China on gender differences in depression, anxiety and stress among college students, had similar findings to the current study. They found that anxiety was the most prevalent mental health concern for college students, especially in the female population (Wenjuan et al., 2020).

It has long been the focus of numerous research studies to establish the role of gender differences in psychological distress (Wenjuan et al., 2020). Epidemiologic studies that have been conducted in the past have shown that, in general, females tend to suffer more from mental health problems than their male counterparts (Wenjuan et al., 2020). Some of the hypothesized explanations for these findings were the physiologic differences between males and females, the increased vulnerability of females to negative emotions and pain (Wenjuan et al., 2020) and the fact that females generally give greater attention to negative events (Sanchez-Teruel et al., 2020). Although it may be the case that the female gender generally experiences higher levels of psychological distress (Pankow et al., 2021), studies have shown that they have healthier ways of coping with the emotional disturbances (Sanchez-Teruel et al., 2020).

With regards to the mental health challenges experienced by college students, studies have shown that female students were more open to seeking help from mental health professionals, while the male students were found to underutilize the mental health services due to their negative attitude towards mental health openness (Wenjuan et al., 2020).

5.5 Research Question 3: Are psychological intervention strategies necessary?

With mental health problems generally becoming increasingly common among university students and approximately half of university students having moderate levels of mental health concerns, including depression, anxiety and stress, at a given time (Wenjuan et al., 2020), psychological interventions for all students are of utmost importance in the university setting (Sanchez-Teruel et al., 2020). In addition to the top source of concern regarding their mental health, which is the academic pressure they experience (Wenjuan et al., 2020), the current pandemic has put added pressure on these students with the sudden

move to online learning, the loss of social connectedness and social support (Graupensperger et al., 2020) and the uncertainty of the future (Sanchez-Teruel et al., 2020).

When interpreting the results, most of what was looked at were the mean values in the depression, anxiety and stress categories. While the majority of the students were not of the opinion that they had severe depression, anxiety or stress, there were some students who stated that they experienced these negative emotions to the extremes. The finding that the females were also found to have significantly higher anxiety levels than the males. For these reasons psychological intervention is necessary for this group of students.

Mental disorders not only pose threats to the students' academic performance, but often also lead to alcohol abuse, substance abuse and, in worse cases, suicide among university students (Wenjuan et al., 2020).

The process of equipping the students with the skills they need to facilitate social adjustment as well as personal and occupational growth by encouraging healthy ways of dealing with the emotional distress experienced by them is vital, especially during these unprecedented times (Sanchez-Teruel et al., 2020).

5.6 Research Question 4: What intervention strategies are available?

The intervention strategies available for assistance with psychological distress during the times of covid-19 are online or telephonic psychological support, as face-to-face intervention approaches are currently not possible. The University of Johannesburg has a Centre for Psychological Services and Career Development (PsyCad) which is dedicated to assisting students and staff with any psychological challenges they may experience. The contact details of a professional counsellor at PsyCad are presented in chapter three (p.29) of this paper.

Additional helplines for psychological assistance in South Africa includes: (The South African Depression and Anxiety Group, 2021)

- The South African Depression and Anxiety Group Helpline – 0800 567 567
- Lifeline South Africa – 0861 322 322
- The Akeso Psychiatric Response Unit – 0861 435 787
- Cipla 24-hour Mental Health Helpline – 0800 456 789
- Adcock Ingram Depression and Anxiety Helpline – 0800 70 80 90

5.7 Summary

The collected and analyzed data revealed that there were no differences in the levels of depression and stress experienced by the Sport Management students at the University of Johannesburg, especially concerning the different genders, but the female students experienced higher levels of anxiety compared to their male counterparts. Previous studies as mentioned above, came to the same conclusion.

Mental health intervention is of utmost importance for university students, especially during a time like the present where there is so much uncertainty about the present as well as the future.



CHAPTER SIX – CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

The conclusions pertaining to the findings in chapter four and discussion in chapter five are presented in this chapter. As initially stated, the aim of this study was to investigate the psychological responses concerning depression, anxiety and stress during the coronavirus (COVID-19) disease pandemic among the Sport Management students at the University of Johannesburg.

6.2 Conclusion

The psychological impact that the COVID-19 pandemic had on the students studying Sport Management was investigated using the DASS-42 questionnaire. The study drew a sample of 102 participants to answer the following questions:

1. What is the psychological impact concerning depression, anxiety and stress during the coronavirus (COVID-19) disease pandemic among the Sport Management students at the University of Johannesburg?
2. How does gender influence the level of psychological impact?
3. Are psychological intervention strategies necessary?
4. What psychological intervention strategies are available?

The study revealed that the prevalence of stress was within the normal ranges, while that of depression and anxiety were within the mild and moderate ranges, respectively. The data also revealed that, when looking at the mean values for depression, anxiety and stress, while both genders experienced stress within normal limits, the females experienced depression and anxiety at slightly higher levels. However, when further interpreted with the T-test for equality of means, it was found that there was no statistically significant difference in the experienced depression and stress between males and females, while there was a statistically significant difference in the anxiety experienced between the two genders. The females experienced higher levels of anxiety in this study group.

6.3 Limitations

A few limitations to mention:

1. The study was meant to investigate the differences in the psychological responses between the different academic years as well as analyze the influence that the demographic factors had on the students' psychological responses to covid-19.

For statistical purposes, the groups that need to be compared are determined by size and these group sizes need to be similar. For that reason, no comparisons were done for age (95.1% of the participants were between 18 – 24 years of age), academic year (62.7% of the participants were in their 1st year), financial difficulties (46.1% of participants stated that they had financial difficulties during lockdown) and marital status (99% of the participants were single).

For this reason, the only comparison that was done was between the genders, which does not give a true reflection of the overall psychological impact of covid-19 on these students.

2. A response rate of 32%, although statistically significant, is low when compared to other studies conducted in other countries on students in the Sport and Movement Sciences Departments.
3. The study was in the form of an online survey, so response bias may have existed in that the students underreported their negative emotions.
4. The study could represent pre-existing mental health conditions that were not part of the DASS-42 questionnaire.

6.4 Recommendations

The following recommendations are put forth for future research:

A study utilizing a larger sample size, including Sport Management students from other universities. The survey should be physically distributed (after covid-19) to possibly increase the response rates. A study looking at the long term effects of covid-19 on the students in Sport Management.

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Appendix A: HOD Permission Letter



Dear Dr Morris-Eyton:

Letter requesting permission to use students as participants in research study

My name is Clemensia Josephine Haragaes, I am currently completing my master's degree in Chiropractic. I am a final year student in the process of completing my dissertation, which is a requirement of my degree. In order to do this I will need to conduct a research study, which will involve the participation of students at the University of Johannesburg, Doornfontein campus.

I would like to request your permission to include your students in the following research study:
"PSYCHOLOGICAL RESPONSES DURING THE CORONAVIRUS DISEASE (COVID-19) PANDEMIC AMONG SPORT MANAGEMENT STUDENTS AT THE UNIVERSITY OF JOHANNESBURG"

The study will be done in the form of an online questionnaire. Participation in this study will be voluntary and no personal information will be requested. The information will remain anonymous and confidential. It will take approximately 10 minutes to complete the questionnaire. The participants will receive their scores after completing the questionnaire and will be advised to contact PSyCaD should their scores indicate that they could be at risk for depression, anxiety or stress.

Please find attached, a copy of the questionnaire.

Researcher:

Handwritten signature of Clemensia Josephine Haragaes.

Clemensia Josephine Haragaes
0743760722 (haragaescj@gmail.com)

Head of Department:

Handwritten signature of Dr Heather Morris-Eyton.

Dr Heather Morris-Eyton
#00 Sport and Movement Studies
16/07/2021

Appendix B: Research Ethic Clearance



FACULTY OF HEALTH SCIENCES RESEARCH ETHICS COMMITTEE

NHREC Registration: REC 241112-035

ETHICAL CLEARANCE LETTER (RECX 2.1)

Student/Researcher Name	Clemensia Haragoes	Student Number	215034349
Supervisor Name	Dr C. Hey	Co-Supervisor Name	N/A
Department	Chiropractic		
Qualification	MTech Chiropractic		
Research Title	PSYCHOLOGICAL RESPONSES DURING THE CORONAVIRUS DISEASE (COVID-19) PANDEMIC AMONG SPORT MANAGEMENT STUDENTS AT THE UNIVERSITY OF JOHANNESBURG		
Date	10 August 2021	Clearance Number	REC-816-2020

Approval of the amended research proposal with details given above is granted, subject to any conditions under 1 below, and is valid until 10 August 2022.

1. Conditions:

Gatekeeper permission, as required.

Please note that failure to comply with the conditions above (if any) prior to implementation of the research will invalidate this ethical clearance.

2. Renewal:

It is required that this ethical clearance is renewed annually, within two weeks of the date indicated above. Renewal must be done using the Ethical Clearance Renewal Form (REC 10.0), to be completed and submitted to the Faculty Administration office. See Section 12 of the REC Standard Operating Procedures.

3. Amendments:

Any envisaged amendments to the research proposal that has been granted ethical clearance must be submitted to the REC using the Research Proposal Amendment Application Form (REC 8.0) prior to the research being amended. Amendments to research may only be carried out once a new ethical clearance letter is issued. See Section 13 of the REC Standard Operating Procedures.

4. Adverse Events, Deviations or Non-compliance:

Adverse events, research proposal deviations or non-compliance must be reported within the stipulated time-frames using the Adverse Event Reporting Form (REC 9.0). See Section 14 of the REC Standard Operating Procedures.

The REC wishes you all the best for your studies.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'C. Stein'.

Prof. Christopher Stein
Chairperson: REC
Tel: 011 559 6504
Email: cstein@uj.ac.za

RECX 2.1 – Faculty of Health Sciences
Research Ethics Committee

Secretary: Ms Ralheanah Pieterse
Tel: 011 559 6073 email: rpieterse@uj.ac.za

Appendix C: Higher Degrees Committee (HDC) Permission Letter



FACULTY OF HEALTH SCIENCES HIGHER DEGREES COMMITTEE

HDC-01-87- 2020

5 August 2021

TO WHOM IT MAY CONCERN:

STUDENT: HARAGAES, C
STUDENT NUMBER: 215034349

TITLE OF RESEARCH PROJECT: Psychological Responses during the Coronavirus Disease (COVID-19) Pandemic among Sport Management Students at the University of Johannesburg

DEPARTMENT OR PROGRAMME: CHIROPRACTIC

SUPERVISOR: Dr C Hay CO-SUPERVISOR: -

The Faculty Higher Degrees Committee has scrutinised your research proposal and concluded that it complies with the approved research standards of the Faculty of Health Sciences, University of Johannesburg.

The HDC would like to extend their best wishes to you with your postgraduate studies

Yours sincerely,

A handwritten signature in black ink, appearing to read 'A Temane', positioned above a horizontal line.

Prof A Temane

Chair: Faculty of Health Sciences HDC

Tel: 011 559 6972

Email: anriet@uj.ac.za

Appendix D: Permission to use students at UJ



19 August 2021

Ms Clemensia Haragaes (215034349)
Faculty of Health Sciences
University of Johannesburg

Dear Ms Haragaes

PERMISSION TO CONDUCT RESEARCH AT THE UNIVERSITY OF JOHANNESBURG (UJ)

The request for the project titled *Psychological responses during the coronavirus disease (COVID-19) pandemic among sports management students at the University of Johannesburg* refers. The change in title and scope is noted from the project review in May 2021. Institutional permission is granted to conduct this study at the University of Johannesburg.

Sincerely

A handwritten signature in black ink, appearing to read "Carol Nonkwelo".

Dr Carol Nonkwelo
Executive Director: Research and Innovation
Email: cnonkwelo@uj.ac.za

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JOHANNESBURG

APPENDIX E – Information Letter



DEPARTMENT OF CHIROPRACTIC RESEARCH STUDY INFORMATION LETTER REC 11.0

Date

Good Day

My name is Clemensia J. Haragaes **I WOULD LIKE TO INVITE YOU TO PARTICIPATE** in a research study on the psychological responses during the Coronavirus disease (COVID-19) pandemic among the Sport Management students at the University of Johannesburg

Before you decide on whether to participate, I would like to explain to you why the research is being done and what it will involve for you. **I will go through the information letter with you and answer any questions you have.** This should take 10 minutes to complete. The study is part of a research project being completed as a requirement for a Master's Degree in Chiropractic through the University of Johannesburg.

THE PURPOSE OF THIS STUDY is to evaluate the psychological responses during the Coronavirus disease (COVID-19) pandemic among Sport Management students.

Below, I have compiled a set of questions and answers that I believe will assist you in understanding the relevant details of participation in this research study. Please read through these. If you have any further questions I will be happy to answer them for you.

- 1. DO I HAVE TO TAKE PART?** No, you don't have to. It is up to you to decide to participate in the study. I will describe the study and go through this information sheet. If you agree to take part, I will then ask you to sign a consent form.
- 2. WHAT EXACTLY WILL I BE EXPECTED TO DO IF I AGREE TO PARTICIPATE?** You will receive a link to a once-off online survey about your perceptions of the COVID-19 pandemic. Please answer the questions referring **ONLY TO THE PREVIOUS WEEK**. The survey is anonymous, meaning that your identity and contact details will not be made available. At the end of the survey you will receive your scores with regards to your depression, anxiety and stress levels. You are urged to seek

professional help if your scores fall under the “high risk” category. The contact details for PsyCaD will be made available at the end of the survey.

3. **APPROXIMATELY HOW LONG WILL MY PARTICIPATION TAKE?** Your participation will take approximately 10 minutes
4. **WHAT WILL HAPPEN IF I WANT TO WITHDRAW FROM THE STUDY?** If you decide to participate, you are free to withdraw your consent at any time, **before the point of the submission of the survey**, without giving a reason and without any consequences. Beyond this point withdrawal of consent is not possible due to the anonymous nature of the research.
5. **IF I CHOOSE TO PARTICIPATE, WHAT ARE THE RISKS INVOLVED?** This study poses no risks to the participants.
6. **IF I CHOOSE TO PARTICIPATE, WHAT ARE THE BENEFITS INVOLVED?** Your participation will give valuable information to the University about the psychological impact the Coronavirus disease pandemic has had on the students in your department. A direct benefit to you will be the chance to get screened and referred to PsyCaD for professional assistance in the event that you need it.
7. **WILL MY PARTICIPATION IN THIS STUDY BE KEPT CONFIDENTIAL?** Yes, no identifying information will be asked. The questionnaire is anonymous and responses cannot be traced back to the participants. Only the researcher will be responsible for the collected data to maintain confidentiality. The anonymised data will be kept in a password-protected file on a password-protected computer which only the researcher can access.
8. **WHAT WILL HAPPEN TO THE RESULTS OF THE RESEARCH STUDY?** The results will be written into a research report that will be assessed. In some cases, results may also be published in a scientific journal. In either case, you will not be identifiable in any documents, reports or publications. You will be given access to the results of this if you would like to see them, by contacting me.
9. **WHAT WILL YOUR RESPONSIBILITIES BE, AS THE RESEARCHER?** My responsibilities are to keep your information safe and protect your privacy. The information that you share for the purposes of this research will only be used for my research. No information will be shared with third parties. I will be reachable to participants who have questions. The handling of the data will be kept honest and ethical integrity will be maintained.
10. **WHO IS ORGANISING AND FUNDING THIS RESEARCH STUDY?** The study is being organised by me, under the guidance of my research supervisor at the Department of Chiropractic at the University of Johannesburg. All costs will be covered by the Supervisor linked Bursary.

11. WHO HAS REVIEWED AND APPROVED THIS STUDY? Before this study was allowed to start, it was reviewed in order to protect your interests. This review was done first by the Department of Chiropractic, and then secondly by the Faculty of Health Sciences Research Ethics Committee at the University of Johannesburg. In both cases, the study was approved.

12. ARE THERE ANY CONFLICT OF INTERESTS PERTAINING TO THIS STUDY? There are no conflict of interests held by anyone involved in this study.

13. WHAT IF THERE IS A PROBLEM? If you have any concerns or complaints about this research study, its procedures or risks and benefits, you should ask me. You should contact me at any time if you feel you have any concerns about being a part of this study. My contact details are:

Clemensia J. Haragaes
074 3760 722
haragaescj@gmail.com

You may also contact my research supervisor:

Dr Caroline Hay
carolineh@uj.ac.za

If you feel that any questions or complaints regarding your participation in this study have not been dealt with adequately, you may contact the Chairperson of the Faculty of Health Sciences Research Ethics Committee at the University of Johannesburg:

Prof. Christopher Stein
Tel: 011 559-6564
Email: cstein@uj.ac.za



FURTHER INFORMATION AND CONTACT DETAILS: Should you wish to have more specific information about this research project information, have any questions, concerns or complaints about this research study, its procedures, risks and benefits, you should communicate with me using any of the contact details given above.

Researcher:

Clemensia J. Haragaes
<Signature>

APPENDIX F – Consent Form



**DEPARTMENT OF CHIROPRACTIC
RESEARCH CONSENT FORM
REC 11.0**

**PSYCHOLOGICAL RESPONSES DURING THE CORONAVIRUS DISEASE (COVID-19) PANDEMIC
AMONG SPORT MANAGEMENT STUDENTS AT THE UNIVERISITY OF JOHANNESBURG**

Please initial each box below:

I confirm that I have read and understand the information letter dated _____ for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

I understand that my participation is voluntary and that I am free to withdraw from this study, before the point of submission, without giving any reason and without any consequences to me.

I agree to participate in the above research.

Name of Participant

Signature of Participant

Date

APPENDIX G - DASS-42 Questionnaire

Section A

General information and Demographical data

1. Age

18-24	1
25-29	2
30-34	3
35-39	4
40 and older	5

2. Gender

Male	1
Female	2
Of non-discriminatory nature	3

3. What course are you enrolled in?

Chiropractic	1
Complementary Health	2
Optometry	3
Podiatry	4
EMC	5
MIRS	6
Biokinetics	7
Sport Management Diploma	8

4. Academic year enrolled in currently

First year	1
Second year	2

Third year	3
------------	---

5. Have you had any financial difficulties during the national lockdown to this point?

Yes	1
No	2
Sometimes	3

6. Marital status

Single	1
Married	2
Divorced	3
Cohabitation	4
Widowed	5

Section B

Please read each statement carefully and choose the number which best describes your state of mind during the Coronavirus pandemic.

Please do not spend too much time on any statement.

There are no right or wrong answer.

Please answer the questions referring **ONLY TO THE LAST WEEK.**

Rating scale:

- **0:** Does not apply to me at all
- **1:** Applied to me to some degree or some of the time
- **2:** Applied to me to a considerable degree or a good part of the time
- **3:** Applied to me very much or most of the time

	0	1	2	3
1. I found myself getting upset by quite trivial things				
2. I was aware of dryness of my mouth				
3. I could not seem to experience any positive feeling at all				
4. I experience breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)				
5. I just could not seem to get going				
6. I tended to over-react to situations				
7. I had a feeling of shakiness (eg, legs going to give way)				

8. I found it difficult to relax				
9. I found myself in situations that made me so anxious I was most relieved when they ended				
10. I felt that I had nothing to look forward to				
11. I found myself getting upset rather easily				
12. I felt that I was using a lot of nervous energy				
13. I felt sad and depressed				
14. I found myself getting impatient when I was delayed in any way (eg, elevators, traffic lights, being kept waiting)				
15. I had a feeling of faintness				
16. I felt that I had lost interest in just about everything				
17. I felt I wasn't worth much as a person				
18. I felt that I was rather touchy				
19. I perspired noticeably (eg, hands sweaty) in the absence of high temperatures or physical exertion				
20. I felt scared without any good reason				
21. I felt that life wasn't worthwhile				
22. I found it hard to wind down				
23. I had difficulty in swallowing				
24. I couldn't seem to get any enjoyment out of things I did				
25. I was aware of the action of my heart in the absence of physical exertion				
26. I felt down-hearted and blue				
27. I found that I was very irritable				
28. I felt I was close to panic				

29. I found it hard to calm down after something upset me				
30. I feared that I would be "thrown" by some trivial but unfamiliar task				
31. I was unable to become enthusiastic about anything				
32. I found it difficult to tolerate interruptions to what I was doing				
33. I was in a state of nervous tension				
34. I felt I was pretty worthless				
35. I was intolerant of anything that kept me from getting on with what I was doing				
36. I felt terrified				
37. I could see nothing in the future to be hopeful about				
38. I felt that life was meaningless				
39. I found myself getting agitated				
40. I was worried about situations in which I might panic and make a fool of myself				
41. I experienced trembling (eg, in the hands)				
42. I found it difficult to work up the initiative to do things				

APPENDIX H - Scoring Key for DASS-42 Questionnaire



Thank you for your participation.

Your Results:

Depression – X

Anxiety – X

Stress – X

Below is a table of possible scores for depression, anxiety and stress.

The survey is used to detect risks of depression, anxiety and stress.

	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely severe	28+	20+	34+

If your scores are in the severe or extremely severe ranges, you are at risk for depression, anxiety or stress. You are strongly urged to seek professional counselling through PsyCad. Please contact the following person for professional counselling:

Ms Mbalenhle Gumbi
mbalenhleg@uj.ac.za
011 559 5752

Appendix I: Statkon form



DEPARTMENT OF CHIROPRACTIC

RESEARCH STATISTICS

This serves to confirm that the following student has discussed the research methodology with me as supervisor, and as such may consult with STATKON regarding the statistical analysis of the research.

Research title: Psychological Responses during the Coronavirus Disease (COVID-19) Pandemic among the Sport Management students at the University of Johannesburg.

Student name: Clemensia Haragoes

Supervisor name: Dr Caroline Hay

Contact number: 074 3760 722

Signed:

Date: 26 August 2020

This serves to confirm that the above indicated student has discussed the relevant statistical analysis of the data that will be obtained in their trial, with STATKON.

Statistician name: Jaclyn de Klerk

Signed:

Date: 26 August 2020

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Appendix J: Turnitin Report

Research Dissertation			
ORIGINALITY REPORT			
11%	10%	4%	7%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS
PRIMARY SOURCES			
1	hdl.handle.net Internet Source	2%	
2	Submitted to University of Birmingham Student Paper	1%	
3	www.healthfocuspsychology.com.au Internet Source	1%	
4	Submitted to Stadio Holdings Student Paper	1%	
5	new.esp.org Internet Source	1%	
6	ujcontent.uj.ac.za Internet Source	1%	
7	Submitted to University of Reading Student Paper	1%	
8	daten-quadrat.de Internet Source	1%	
9	Submitted to University of Johannesburg Student Paper	1%	