

Coping through Dungeon Crawls: Relationships between Dungeons & Dragons and Coping
with anxieties and depression

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Abstract

Aims: The current study sought to investigate if there was a relationship between playing the table-top role-playing game Dungeons & Dragons (D&D) and coping with anxieties and depression. The study applied three research questions to investigate this relationship, these being, is there a difference in scores of anxieties and depression between groups (RQ1), Is there a difference in coping scores between groups (RQ2) and finally Is there a relationship between coping styles and anxiety and depression (RQ3). **Method:** Participants ($n = 115$) took part in an online questionnaire which consisted of demographic questions on their age, gender and whether or not they played Dungeons & Dragons, which was followed by two scales, the Hospital Anxiety Depression scale (HADS), which consisted of questions regarding participants levels of anxiety and depression and the Brief-COPE, which consisted of questions regarding how participants Cope with stressful events in their life. **Results:** Results showed that there was a statistically significant difference in scores between players and non-players of D&D with players scoring lower on levels of anxiety but higher on levels of depression. Results also indicated that there was no statistically significant difference in coping styles between groups, and found that anxiety has a moderately positive correlation with avoidant & Emotion-focused coping, and that depression has a moderate positive correlation with avoidant-coping also. **Conclusion:** Findings provide a greater understanding of the possible benefits that playing D&D has on levels of anxiety, it also importantly found that there was no difference in coping styles between groups, and that playing Dungeons & Dragons does not necessarily lead to maladaptive coping, results also indicate that further research needs to be conducted on the effects of the Role-playing game on coping styles.

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Introduction

Prevalence of Anxiety and depression

Anxiety and depression are two of the most common mental health disorders impacting the quality of life of a significant portion of the global population. Most people experience bouts of depression and anxiety at some point throughout their lives, whether grieving a loss, or having feelings of anxiety before job interviews and speeches. It is now recognised that anxiety and depression can be disabling for some who experience them daily. There is a diverse number of studies which focus on levels of anxiety and depression in the population and the findings have made it clear that anxiety follows the trends of depression with the two most commonly being seen in young adults between the ages of 18 – 29 (Villarroel & Terlizzi, 2020; Terlizzi & Villarroel, 2020). While these statistics show the rates for the United States, since 2020 and the global COVID-19 pandemic there is no doubt that rates of depression and anxiety have soared in young adults across the world. From depression rates in young men and women in Ireland nearly doubling from 22% to 40%, and 31% to 55% respectively (Smyth & Nolan, 2022) to young adults in the United States rates soaring from 14.66% (Goodwin et al., 2020) to 48% post pandemic (Adams et al., 2022).

Coping strategies and interventions have shown to be effective in managing the symptoms of these disorders. From the conception of psychiatry, the practice emphasised that depressive disorders must have specific symptoms, and up until the release of the DSM-III (1980), gaining a diagnosis depended upon the degree to which these specific symptoms were an understandable response to contextual circumstances (Horwitz et al., 2016). Throughout the last century we have seen many different types of intervention for those suffering with depression and anxiety, talking therapies such as counselling, Cognitive behavioural therapy

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(CBT), psychotherapy and group therapies are just some of the forms of talking therapies available in Ireland (HSE, 2022) some other forms of treatment for depression have been described as, physical activity, and self-help groups for mild depression and antidepressants for moderate to severe depression (HSE, 2022). Holistic approaches to treating depression have also been studied, looking at adopting healthy lifestyles, developing stress handling techniques and a balanced diet, as well as focusing on social support from peers (Xiang, 2010). By viewing these variables as interconnected, the holistic approach finds them to be just as important and has urged healthcare professionals to work closely with their patients before deciding on therapies (Xiang, 2010).

Further research into anxiety and depression has found that certain interventions can be more effective than others. Specifically, Cognitive-behavioural therapy (CBT), mindfulness-based interventions, and pharmacotherapy which have all been found to be effective in reducing symptoms of anxiety and depression (Hofmann et al., 2012; Khoury et al., 2013; Cuijpers et al., 2014).

Reviews of meta-analyses by Hoffman et al., (2012) studied the efficacy of CBT on the following problems: Substance use disorder, schizophrenia and other psychotic disorders, depression, and anxiety disorders, eating disorders, insomnia, personality disorders, anger and aggression and many more. From the research they found that the strongest support exists for CBT And further, meta-analyses by Cuijpers et al., (2014) have shown that CBT can lead to significant reductions in anxiety and depressive symptoms and the effects of this form of treatment can be long lasting. In addition to CBT, mindfulness-based cognitive therapy (MBCT) has also shown to be effective in reducing a variety of psychological problems but is especially effective when reducing levels anxiety and depression (Khoury et al., 2013). These interventions have focused on cultivating a non-judgmental awareness of one's thoughts, emotions, and sensations, which can help individuals better cope with their symptoms.

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Further alternative interventions have included pharmacotherapy and the use of antidepressant medications which work by altering the balance of chemicals in the brain, such as serotonin and norepinephrine (Cuijpers et al., 2014). In addition to these traditional interventions, alternative interventions such as exercise, yoga and meditation have also shown to be effective in reducing symptoms of anxiety and depression (Stanton & Reaburn, 2014; Uebelacker et al., 2017; Jindani et al., 2015).

Group Therapy

One more recent form of therapeutic intervention for both anxiety and depression can be found in group therapy. Over the last 20 years there has been an increased popularity in group therapy models, with much research being conducted on the efficacy of its various models, a meta-analysis and review of empirical research on group psychotherapy conducted by Dermutt, Miller & Brown (2001) found that 45 of the 48 studies reviewed concluded that group psychotherapy was effective, and a further 43 of these studies presented had adequate data showing that group therapy had significantly reduced depression. Much research has been done in the 21 years since, such as the work conducted by Griffiths et al., (2019) which found that within a mentalisation based group therapy model for adolescents, self-reported self-harm and emergency reported self-harm significantly diminished over time in the two groups, as well as social anxiety, emotional regulation, and borderline traits. Further alternative interventions lie in role-play therapy.

Role-play Theory

The current study like that conducted by Abbott et al., (2021) takes its theoretical approach through the form of role-play theory, which differs from other experimental alternatives (Yardley-matwiejczuk & Krycia, 1997). Roleplay is an instructional experience in which the participants take on the responsibility of acting in different characters roles,

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within predefined and often realistic scenarios, within role-play the actors, must convey accurately the feelings and actions of the characters they are playing, in the role-play setting there is usually a director responsible for guiding and directing the actors to connect and dive more deeply into their roles (Bawa, 2020).

Previous studies have shown the effectiveness of role-play theory in various contexts. For instance, Abbott et al., (2021) found that role-play was effective in improving communication skills within healthcare professionals.

Despite the effectiveness of these interventions, further research is needed to understand the underlying mechanisms that contribute to their effectiveness. For instance it is still unclear how certain aspects of CBT, such as cognitive restructuring or exposure therapy, lead to symptom reduction (Hofmann et al., 2012). Similarly, more research is needed to understand the specific mechanisms through which exercise, yoga, and meditation lead to improved mental health outcomes (Stanton & Reaburn, 2014; Uebelacker et al., 2017; Jindani et al., 2015).

Dungeons & Dragons

One form of new and experimental roleplay and group therapy which has shown promising results has been that of using the Table-top Role-playing game, 'Dungeons & Dragons' as a form of therapeutic intervention. Dungeons & Dragons is a story driven role-playing game that takes place around a table much like a board game, in which players (Who act as the Actors) create a character unique to themselves using a set of guidelines such as playable race (E.g Humans, Elves, Gnomes) and classes (E.g Wizard, ranger, cleric) devised by the person who runs the game known as the 'Dungeon Master' (Who acts as the facilitator), whose role it is to write the world and a basic storyline referred to as a Campaign, that players can follow, explore and most importantly, make their own. These stories are

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usually flexible, and player driven ranging from something as simple as saving a family from a hoard of evil goblins, to something more complex like taking down corrupt dictators who have enslaved entire kingdoms (Wizards of the Coast, 2014).

Previous Research

Since the release of the first edition of the game in 1974 there has been an abundance of studies focusing on the Table-top Role-playing games effects on the mental health of its player base. The reason for many of these early studies had to do with what is known in the community as ‘The satanic panic’, a time in which it was widely believed by Christians in America that playing Dungeons & Dragons was causing its players to become detached from real life, there were even claims made that the game itself had led players to become, suicidal, possessed and even homicidal. These claims led Psychologists to conduct empirical studies on the table-top game, such as that done by Derenrard & Kline (1990), which found no empirical evidence to support the media’s claim that Dungeons & Dragons was harmful towards its players.

Since then, there has been many empirically based studies which have found psychological and social benefits of playing Dungeons & Dragons, such as the study conducted by Orr, King & McGonnell, (2020) whose participants experienced a perceived improvement in social competence, a perceived decrease in social anxiety and found that Role-playing games such as Dungeons & Dragons have the potential to be used as effective interventions for those who suffer deficits in social competence. Another more recent study by Abott Et al., (2021) similarly found that its participants who had attended a yearlong group which used Dungeons and Dragons within a therapeutic environment described an increase in confidence within social situations, specifically with boundaries and making mistakes after joining the group. The study also found that the skills its participants had

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practiced in game had been carried over into their real-world experiences such as problem-solving, communication, collaboration, empathy, perspective-taking and emotional regulation. Furthermore research conducted by Causo & Quinlan (2021), interviewed Dungeons & Dragons players who had previous accounts of mental health difficulties, with regards to their experiences of role-play, and found that the participants reported that playing Dungeons & Dragons had assisted with the building of relationships, experiencing emotions through their in game player characters, a development of adaptive skills, an ability to engage with difficult mental health topics, an ease in anxieties, and experiencing a safe space from their mental health difficulties. Further research by Gutierrez (2017) found that by extracting themes from mental health practitioners who have used the game as an intervention for clients in an individual/group therapy setting that each participant involved had identified different aspects of the intervention as being valuable to therapeutic practice with not only adolescents but with other age groups also.

Dungeons & Dragons has also been used as a non-clinical therapy model for young adults and teens with autism, an example being a group in Buckingham in England who have found that playing Dungeons and Dragons has helped teens of the spectrum who have suffered from loneliness and isolation, who otherwise would not have gotten any help (Collier, 2018). Another study by Chaplan-Hoang (2021) looking at Dungeons & Dragons as treatment for adolescents on the autism spectrum found that playing the game gives a good way to create a safe space and can create an access point for those who may want to expand their social circle through the game and found that high functioning teens on the spectrum who are in therapy to improve their social and communication skills can benefit from Dungeons & Dragons as a tool. They also found that it is uniquely suited to be a distanced intervention with the incorporation of technology. And one more study which focused on a schizoid young man whose therapy model was modified to suit his interest in Dungeons &

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Dragons after he attempted suicide found that the fantasy was a safe guide which helped the patient learn how to acknowledge and express his inner thoughts and he ultimately matured and developed a healthier lifestyle (Blackmon, 1994).

The present study

The evidence found in the research on Dungeons & Dragons, efficacy as a form of therapeutic intervention is consistent with the work done in Role-play research with findings which indicate that Dungeons & Dragons based therapy has both psychological and social benefits. Because the subject is relatively novel, there is yet to be any studies in which the results have been inconsistent with the findings that have been made in the aforementioned studies. It is apparent however that more research is needed to present any conclusive evidence to support or negate the use of Dungeons & Dragons in a therapeutic context (Henrich & Worthington, 2021).

The present study aims to follow previous recommendations by Henrich & Worthington, (2021), seeking to further the current research by investigating if there is a relationship between playing the table-top role-playing game Dungeons & Dragons and coping with anxieties and depression. The study will apply three main research questions to investigate this relationship. (RQ1), is there a difference in scores between players and non-players of dungeons and dragons in depression and anxiety. (RQ2), Is there a difference in coping scores between Dungeons & Dragons players, and non-Dungeons & Dragons players. (RQ3), Is there a relationship between coping styles in anxiety and depression.

Methodology

Participants

The initial sample consisted of 120 participants over the age of 18, of these participants 5 were excluded. The final sample consisted of 115 (Males (Incl. Trans): $n = 73$; Female (Incl. Trans): $n = 42$) people, with a mean age of 28.7 years ($SD = 11.049$) ranging from 18 – 62. Participants were recruited through methods of convenience sampling using social media accounts (Instagram, Reddit & Facebook). This ensured that both groups required for the study (Dungeons & Dragons players, and Non-Dungeons & Dragons players) were reached out to, which helped create a more representative sample of the population. Of the participants recruited; 75 (65.2%) were Dungeons & Dragons players and 40 (34.8%) were not.

Materials

Demographics

Participants were asked to indicate their gender (Male (Incl. Trans), Female (Incl. Trans), other) and to provide their age. Participants were also asked to indicate whether or not they played Dungeons & Dragons and how frequently they played (weekly, monthly, yearly, other).

Hospital Anxiety and Depression Scale (HADS).

The hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith 1983), consists of 14 items or statements, seven of which assess levels anxiety (HADS-A) and seven which assess levels of depression (HADS-D). Each item is scored on a four-point Likert scale (0 – 3), with higher scores indicating greater levels of anxiety or depression. Participants in

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the current study read the 14 items and rated their answers from 0 – 3. An example of a statements relating to Anxiety is as follows: *I feel tense or 'wound up'*. An example of a statement relating to Depression is as follows: *I look forward with enjoyment to things.*

Hospital Anxiety, and Depression scale has previously demonstrated high levels of reliability and validity over time (Bjelland et al., 2002; Löwe et al., 2004). The means of each HADS-A and HADS-D subscale have shown internal consistency reliability with Cronbach's alpha scores of .83 and .82 respectively. In the current study, the Cronbach's alpha score showed good internal consistency reliability in the HADS-A subscale with a score of .85, however it showed a low internal consistency reliability in the HADS-D subscale with a score of .53.

(See appendix B for HADS)

Brief-COPE.

The Brief-Cope scale was used to assess participants levels of three different coping styles, these being, Problem-focused coping, emotion-focused coping and avoidant coping. Sample items include *I've been turning to work or other activities to take my mind off things* and *I've been getting emotional support from others*. The Brief-COPE is a 28 item self-report questionnaire designed to measure the different effect and ineffective ways people cope with stressful life events. 'Coping'. The Brief-Cope is divided into 3 subscales, these being Problem-Focused coping, Emotion-Focused coping and Avoidant coping. The scale consists of 28 items which assess participants levels of each coping style. The items are scored on a four-point Likert scale, ranging from 1 (I haven't been doing this at all) to 4 (I've been doing this a lot). Cronbachs alpha for the Brief-Cope have shown a good reliability from .25 to 1.00 (Yusoff, Low & Yip, 2010). In the current study the scale had good internal reliability ($\alpha = .79$). (See appendix C for Brief-COPE)

Design

The present study was quantitative in nature, applying a cross-sectional design. There were 2 independent variables (IV) in the current research: playing Dungeons & Dragons, and Time spent playing Dungeons & Dragons. The dependent variables (DV) for the study were Depression, anxiety, and levels of Avoidant coping, problem-focused coping, and emotional-focused coping. A Manova was conducted to assess the first (RQ1), and second (RQ2) research questions. These analyses examined whether there was a difference in scores between the two groups in their coping styles and between the two groups in terms of levels of anxiety and depression. A Spearman's correlation was conducted to assess the third (RQ3) research question as the descriptives indicated a violation of the assumptions of normality and examined whether there was a relationship between coping styles and levels of depression and anxiety,

Procedure

Data for the current study was collected through an online questionnaire. The questionnaire used within the current research was anonymous and self-reported. The questionnaire was disseminated through the researcher's various social media accounts (Instagram, Facebook & Reddit) through a link. When participants decided to participate in the study, they would follow a link shared through their preferred social media and were provided with an information form which contained details of the study and what was involved in participation of the study. The information form also provided information of any risk and benefit of participation (See appendix D for Information form). From the information form, participants were brought to a page which contained the consent form which was required to move further in the study. The consent form provided allowed the participants to give their informed consent to participate in the research before continuing with the

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questionnaire (See appendix E for Consent form). Once they had completed the 2 sections of the questionnaire, there was a debrief form, which included my contact details, along with my supervisors contact details, in case the participants had any issues or questions about the study. The debriefing form also included helpline numbers and a statement which encouraged participants to seek any help needed if the questionnaire had caused any distress (See Appendix F for Debrief form).

Ethical considerations

The data for the current study was recorded following the ethical guidelines in accordance with the psychological society of Irelands research protocols for psychology and the National College of Irelands, code of ethics for research with human participants.

Results

Descriptive statistics

The current data is taken from a sample of 115 participants ($n = 115$). This consisted of 63.5% males (Incl. Trans) ($n = 73$) and 36.5% females ($n = 42$). A large proportion of the sample 65.2% ($n = 75$) identified as Dungeons & Dragons players, the rest of the sample 34.8% ($n = 40$) distinctly identified as Not being Dungeons & Dragons players. There are 5 Continuous variables in the current study, including, anxiety scores, depression scores, level of avoidant coping, level of problem-focused coping, and level of emotion-focused coping. Mean, standard deviation, minimum and maximum scores are displayed in Table 1 below.

Table 1

Descriptive statistics for all continuous variables, $N = 115$

Variable	<i>M</i> [95% CI]	<i>SD</i>	Range
Total Anxiety	9.81[8.86 – 10.76]	5.14	20
Total Depression	9.70[9.07 – 10.34]	3.41	14
Total Avoidant coping	16.75[16.06 -17.43]	3.71	17
Total Problem-Focused coping	19.57[18.62 – 20.51]	5.09	23
Total Emotion-Focused coping	29.89[28.90 – 30.87]	5.32	29

Inferential statistics

Spearman's correlation

Preliminary analyses were performed to ensure no violation of the assumptions of normality; Total Anxiety, Total Depression, and Total Avoidant coping were non normally distributed. Therefore, a non-parametric Spearman correlation coefficient was computed instead of a Pearson correlation coefficient to assess the relationship between Total Anxiety and Depression, with Avoidant coping, Problem-Focused coping, and Emotion-Focused coping. There was a moderate positive correlation between the two variables Anxiety and Avoidant-Coping ($r = .443, n = 115, p < .01$) indicating that the two variables share approximately 19.62% of variance in common, furthermore there was a weak positive correlation between the two variables, Anxiety and Emotional-Focused coping ($r = .274, n = 115, p < .01$) indicating that the two variables share approximately 7.5% of variance in common. There was also a moderate positive correlation between the two variables, Depression and Avoidant-coping ($r = .414, p < .01$) indicating that the two variables share approximately 17.13% of variance in common. Results indicate that higher levels of anxiety are associated with higher levels of avoidant-coping, and higher levels of anxiety are also associated with higher levels of emotion-focused coping. Furthermore, higher levels of depression are associated with higher levels of avoidant coping. There was a non-significant relationship between anxiety and problem-focused coping, as well as a non-significant relationship between depression and problem-focused coping, as well as depression and emotion-focused coping.

Multivariate analysis of variance.

A one-way between-groups multivariate analysis of variance was performed to investigate levels of anxiety and depression in Dungeons & Dragons players and non-Dungeons & Dragons players. Two dependent variables were used: Anxiety and Depression.

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Preliminary assumption tests were conducted to ensure that there was no violation of the assumptions of normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices and multicollinearity. There was a statistically significant differences between Dungeons & Dragons players and non-Dungeons & Dragons players on the combined dependent variables, $F(3, 111) = .27, p = .846$; Wilk's Lambda = .99; partial eta squared = .007. Mean scores for the variable anxiety were higher in the non-Dungeons & Dragons players group ($m = 10.18$) than the Dungeons & Dragons player group ($m = 9.61$), further Mean scores for the variable depression were inversely higher in the Dungeons & Dragons players group ($m = 10.25$) than the non-Dungeons & Dragons players group ($m = 8.68$).

A further one-way between-groups multivariate analysis of variance was performed to investigate coping differences in Dungeons & Dragons players and non-Dungeons & Dragons players. Three dependent variables were used: Avoidant-coping, Problem-focused coping, and Emotion-focused coping. Preliminary assumption tests were conducted to ensure no violation of the assumptions of normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices and multicollinearity. There was no statistically significant difference between Dungeons & Dragons players & Non-Dungeons & Dragons players in the combined dependent variables, $F(2, 112) = 5.77, p = .004$; Wilk's Lambda = .90; partial eta squared = .093.

Discussion

The current study aimed to investigate the relationship between playing the table-top role-playing game Dungeons & Dragons and coping with anxiety and depression. It also aimed to look at the relationships between coping styles and anxiety and depression through examining correlations in scores on the Hospital Anxiety Depression scale, and the Brief-

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Cope (HADS; Zigmond & Snaith, 1983; Brief-COPE; Carver, 1997). The study implemented three research questions to gain an understanding of the aim; Is there a difference in scores of anxieties and depression between Dungeons & Dragons players and Non-Dungeons & Dragons players (RQ1), Is there a difference in coping scores between Dungeons & Dragons players and Non-Dungeons & Dragons players (RQ2) and finally is there a relationship between coping styles & Anxiety and depression (RQ3).

From the first research question results of the Multivariate Analysis of Variance indicated that there was a significant difference in scores of anxieties and depression between players of Dungeons & Dragons and Non-players of Dungeons & Dragons. In the second research question results of the Multivariate Analysis of Variance indicated that there was no significant difference in the three coping styles (Avoidant-coping, Emotion-focused-Coping, Problem-focused-Coping) between Dungeons & Dragons players and Non-Dungeons & Dragons players. In support of the third research question, the results indicated that there was a moderate positive correlation between levels of anxiety, and avoidant-coping as well as depression and avoidant-coping, there was also a weak positive correlation between anxiety and emotion-focused coping.

The findings of the present studies first research question are consistent with previous research which has suggested that playing Dungeons & Dragons can decrease levels of anxiety. Understanding that Dungeons & Dragons players show significantly lower mean scores in anxiety consequentially gives one explanation to what has been found in past research the paying the table-top role-playing game can increase an individual's social competence and confidence in social situations (Orr, King & McGonnell, 2020; Abbott et al., 2021; Chaplan-Hoang, 2021). However, as the findings within the current study are observational in nature, a causal relationship between playing Dungeons & Dragons and a decrease in anxiety cannot be inferred. Overall the study's findings contributed to previous

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literature, furthering the findings that there seems to be a lower level of anxiety in players of Dungeons & Dragons, furthermore there has been scant research on looking at the relationships between levels of depression and playing Dungeons & Dragons, however in the present study it was seen that players of the game tended to have higher levels of depression than non-players of the game. This result is interesting as results by Carter & Lester, (1998) found while exploring the negative aspects that could be linked to playing Dungeons & Dragons, that there was no significant link between playing the table-top role-playing game and having high scores in depression, however the results of the study by Carter & Lester (1998) was conducted on an undergraduate group and so its findings may not be generalisable to other populations such as the population of the current study.

While there has not been much prior research into coping styles associated with playing Dungeons & Dragons, the findings related to the present studies second research question were not dissimilar to what has been found previously which has suggested that there is a lack of maladaptive coping associated with playing Dungeons & Dragons (Henrich & Worthington, 2021). As discussed in the Meta-analysis conducted by Henrich & Worthington, (2021), there has so far been three studies which have explored the negative aspects which could be linked to playing Dungeons & Dragons, however until the present study it appears that there has been no research which has specifically looked at coping styles. The results of the present study furthered the prior research by showing that there is no statistically significant difference in coping styles between Dungeons & Dragons players and non-Dungeons & Dragons players, meaning that Dungeons & Dragons players do not tend to lean towards a different coping mechanism than non-Dungeon & Dragons players. Although this is the case it is recommended that more research investigates the other types of coping styles as the current study only focused on the three styles avoidant-coping, emotion-focused-coping and problem-focused-coping.

The findings of the studies third research question are consistent with previous research, showing that levels of higher levels of anxiety correlate moderately with higher levels of avoidant-coping styles, as well as correlates slightly with emotion-focused research. These results are much like what has previously been found in studies such as that by Weiner & Carton (2012), which found that avoidant-coping mediated the relationship between maladaptive perfectionism and test-anxiety, the study further much like the current study found that higher levels of anxiety were associated with use of avoidant-coping. Furthermore previous research has suggested that emotion-focused coping is positively associated with anxiety (Leandro & Castillo, 2010; Kwan, lo & Ng, 2022). Finally, prior research into depression has similarly to the current study found that higher levels of avoidant-coping are associated with higher levels of depression (Herman-Stabl, Stemmler & Petersen 1995); Seiffge-Krenke & Klessinger, 2000; Leandro & Castillo, 2010; Iwamoto et al., 2010).

As Dungeons & Dragons players scored higher on Depression, which has a moderately positive correlation with avoidant-coping styles, a form of coping which has shown in previous research to mediate the relationships between depersonalisation and fantasies, it could be seen that Dungeons & Dragons players may use in game role-play and fantasy as a way of avoidant-coping, however as the current study is observational by nature a causation cannot be inferred (Wolfradt & Engelmann, 2003; Melodia, Canale & Griffiths, 2022).

Limitations

In the present study, several limitations were identified. Firstly, the scales utilised may not have measured the variables accurately. While the Hospital Anxiety Depression scale, showed good reliability in the current and previous research, it was short consisting of only 14 (7 items in each subscale) (Zigmond & Snaith, 1983). This may imply that the scale

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was not delicate or detailed enough to truly capture the complexity of anxiety and depression symptoms in the studies participants. A similar limitation may be said for the second questionnaire used, the Brief-COPE, which unlike its longer counterpart only measures 3 coping styles, which may have limited the current study's findings implying that there is no statistically significant difference in coping styles between Dungeons & Dragons, and Non-Dungeons & Dragons players. Furthermore, the participants of the study were primarily based in Ireland, which may restrict the findings generalisability. Although the study acquired the needed number of participants suggested by a G Power analysis, the sample may not have successfully accounted for cultural differences. A further limitation of the study lies in the sample which was heavily skewed with Dungeons & Dragons players accounting for 65.5% of the sample size, while it could be considered a strength to have such a large sample of a niche population, in the current study the population was being compared with Non-Dungeons & Dragons players, which may have led to skewed results.

In the Demographic section of the online-questionnaire there was additional questions which regarded the participants, age, gender and how long they had played Dungeons & Dragons, if they had at all, although there was no analysis ran for these 3 segments of the demographic questionnaire as age and gender, and How long someone had played Dungeons & Dragons were not considered at all in the study. However, it is recommended that future studies may consider investigating the levels of anxiety and depression in players who play more often than not, to see whether consistent playing of the Table-top Role-playing game affects scores of anxiety and depression.

Finally, the entirety of the scales used in the questionnaire relied on self-report measures which was a limitation of the study. Although anonymous, some individuals may have felt embarrassed of their levels of anxieties, depressions or may have completely denied their feelings, the same can be said about the Coping inventory. By utilizing self-reported

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scales, the data may have been limited to how the individual participating felt at the time, rather than in general. However there has been previous research such as that by Abott et al., (2021), which used more experimental and qualitative techniques looking at using Dungeons & Dragons as a therapeutic intervention.

A major strength in the current was the age sample, although not specifically used to measure any variables, the sample consisted of a wide range of participants ranging from 18 – 62, by having this wide age range, the study was able to generalise the findings to a larger population. Furthermore the current study followed the recommendations given by (Henrich & Worthington, 2021) by matching Dungeons & Dragons players with Non-players to further the little previous research conducted on the topic.

Implications

There is a diverse number of studies within the last several years which have accumulated a wide range of evidence which strongly suggests, like the current study, that Dungeons & Dragons can help with lowering levels of anxiety. Hence, the practical implications of this study alongside the previously conducted research suggests that Dungeons & Dragons may have the ability to be used as a therapeutic intervention for those suffering from anxiety, however more research explorative research like that of Abott et al., (2021) to investigate this relationship further. The present study provided evidence that playing Dungeons & Dragons does not lead to maladaptive coping styles such as avoidant-coping, therefore more explorative analyses and research could be conducted to investigate whether Dungeons & Dragons could potentially be used as a way to engage individuals in weekly activities that are not associated with negative coping strategies. The study has also provided a further insight into the relationship between playing Dungeons & Dragons and depression, while a causation could not be inferred, it was found that Dungeons & Dragons

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players may have higher levels of depression than non-players. Further research is needed to better understand this relationship, but this information could be used to explore the potential negative effects of playing Dungeons & Dragons on an individual's mental health.

Conclusion

The present study further explored the current research which has been conducted on the relationships between playing Dungeons & Dragons and mental health, by examining the relationship between playing the table-top game and levels of anxiety and depression. In relation to anxiety and depression, the current study offers similar results to previous research which have found that those who play Dungeons & Dragons tend to have lower levels of anxiety. Furthermore, the study indicated that those who play Dungeons & Dragons tend to have higher levels of depression. Additionally, the current study aimed to examine whether there was a statistically significant difference in coping styles and found that there is no significant maladaptive coping style associated with playing Dungeons & Dragons, as well as not-playing Dungeons & Dragons. Finally, the study aimed to examine the associations between coping styles and anxiety and depression by investigating the correlations on the Hospital Anxiety Depression scale (HADS) and the Brief-Cope. The findings from these investigations align with what has previously found, that anxiety is positively associated with avoidant-coping as well as emotion-focused coping styles, and that depression is also positively associated with avoidant-coping styles. The findings of the research highlight the need for further research on the efficacy of Dungeons & Dragons as a form of therapeutic intervention for those suffering from anxiety. Further research is also recommended to further investigate the relationship between playing the game and levels of depression. Finally it is also recommended that future research explores the relationship between consistency of

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playing Dungeons & Dragons and levels of anxiety and depression as well as age, and gender differences in player scores on coping with anxiety and depression, as these were not touched upon in the present study.

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Appendices

Appendix A

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Evidence of Data and SPSS output (Full data files are available upon request)

Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role	
1	age	Numeric	8	0	Age In years	None	None	8	Right	Scale	Input
2	Gender	Numeric	29	0	Gender	{1, Male (in...	None	13	Right	Nominal	Input
3	Players	Numeric	3	0	Do you play D&D	{0, No}...	None	10	Right	Nominal	Input
4	Frequency_...	Numeric	40	0	How often do y...	{0, I do not ...	None	15	Right	Nominal	Input
5	Anx1	Numeric	8	0	I feel tense or ...	None	None	8	Right	Nominal	Input
6	Dep1	Numeric	8	0	I still enjoy the ...	None	None	8	Right	Nominal	Input
7	Anx2	Numeric	8	0	I get a sort of fri...	None	None	8	Right	Nominal	Input
8	Dep2	Numeric	8	0	I can laugh and...	None	None	8	Right	Nominal	Input
9	Anx3	Numeric	8	0	Worrying thoug...	None	None	8	Right	Nominal	Input
10	Dep3	Numeric	8	0	I feel cheerful	None	None	8	Right	Nominal	Input
11	Anx4	Numeric	8	0	I can sit at eas...	None	None	8	Right	Nominal	Input
12	Dep4	Numeric	8	0	I feel as if I am ...	None	None	8	Right	Nominal	Input
13	Anx5	Numeric	8	0	I get sort of frig...	None	None	8	Right	Nominal	Input
14	Dep5	Numeric	8	0	I have lost inter...	None	None	8	Right	Nominal	Input
15	Anx6	Numeric	8	0	I feel restless a...	None	None	8	Right	Nominal	Input
16	Dep6	Numeric	8	0	I look forward w...	None	None	8	Right	Nominal	Input
17	Anx7	Numeric	8	0	I get sudden fe...	None	None	8	Right	Nominal	Input
18	Dep7	Numeric	8	0	I can enjoy a g...	None	None	8	Right	Nominal	Input
19	AC1	Numeric	8	0	I've been turnin...	None	None	8	Right	Nominal	Input
20	PF1	Numeric	8	0	I've been conce...	None	None	8	Right	Nominal	Input
21	AC2	Numeric	8	0	I've been saying...	None	None	8	Right	Nominal	Input
22	AC3	Numeric	8	0	I've been using ...	None	None	8	Right	Nominal	Input
23	EF1	Numeric	8	0	I've been gettin...	None	None	8	Right	Nominal	Input
24	AC4	Numeric	8	0	I've been giving ...	None	None	8	Right	Nominal	Input
25	PF2	Numeric	8	0	I've been taking ...	None	None	8	Right	Nominal	Input
26	AC5	Numeric	8	0	I've been refusin...	None	None	8	Right	Nominal	Input
27	EF2	Numeric	8	0	I've been saying...	None	None	8	Right	Nominal	Input
28	PF3	Numeric	8	0	I've been gettin...	None	None	8	Right	Nominal	Input
29	AC6	Numeric	8	0	I've been using ...	None	None	8	Right	Nominal	Input

```

GET
FILE='C:\Users\kevin\Desktop\Dungeons and Dragons stats.sav'.
DATASET NAME DataSet1 WINDOW=FRONT.
FREQUENCIES VARIABLES=Gender Players Frequency_of_Play
/STILES=4
/STATISTICS=STDDEV VARIANCE RANGE MINIMUM MAXIMUM MEAN MEDIAN
/ORDER=ANALYSIS.
    
```

Frequencies

[DataSet1] C:\Users\kevin\Desktop\Dungeons and Dragons stats.sav

	Gender	Do you play D&D	How often do you play?
N	Valid 115	115	115
	Missing 0	0	0
Mean	1.37	.65	1.21
Median	1.00	1.00	1.00
Std. Deviation	.484	.478	1.260
Variance	.234	.229	1.588
Range	1	1	4
Minimum	1	0	0
Maximum	2	1	4
Percentiles	25 1.00	0.00	0.00
	50 1.00	1.00	1.00
	75 2.00	1.00	2.00

Frequency Table

Gender		Frequency	Percent	Valid Percent	Cumulative Percent
1	2				

Appendix B

Hospital Anxiety Depression Scale (REF)

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Hospital Anxiety and Depression Scale (HADS)

Tick the box beside the reply that is closest to how you have been feeling in the past week.
Don't take too long over you replies: your immediate is best.

D	A		D	A	
		I feel tense or 'wound up':			I feel as if I am slowed down:
3		Most of the time	3		Nearly all the time
2		A lot of the time	2		Very often
1		From time to time, occasionally	1		Sometimes
0		Not at all	0		Not at all
		I still enjoy the things I used to enjoy:			I get a sort of frightened feeling like 'butterflies' in the stomach:
0		Definitely as much	0		Not at all
1		Not quite so much	1		Occasionally
2		Only a little	2		Quite Often
3		Hardly at all	3		Very Often
		I get a sort of frightened feeling as if something awful is about to happen:			I have lost interest in my appearance:
3		Very definitely and quite badly	3		Definitely
2		Yes, but not too badly	2		I don't take as much care as I should
1		A little, but it doesn't worry me	1		I may not take quite as much care
0		Not at all	0		I take just as much care as ever
		I can laugh and see the funny side of things:			I feel restless as I have to be on the move:
0		As much as I always could	3		Very much indeed
1		Not quite so much now	2		Quite a lot
2		Definitely not so much now	1		Not very much
3		Not at all	0		Not at all
		Worrying thoughts go through my mind:			I look forward with enjoyment to things:
3		A great deal of the time	0		As much as I ever did
2		A lot of the time	1		Rather less than I used to
1		From time to time, but not too often	2		Definitely less than I used to
0		Only occasionally	3		Hardly at all
		I feel cheerful:			I get sudden feelings of panic:
3		Not at all	3		Very often indeed
2		Not often	2		Quite often
1		Sometimes	1		Not very often
0		Most of the time	0		Not at all
		I can sit at ease and feel relaxed:			I can enjoy a good book or radio or TV program:
0		Definitely	0		Often
1		Usually	1		Sometimes
2		Not Often	2		Not often
3		Not at all	3		Very seldom

Please check you have answered all the questions

Scoring:

Total score: Depression (D) _____ Anxiety (A) _____

0-7 = Normal

8-10 = Borderline abnormal (borderline case)

11-21 = Abnormal (case)

Appendix C

Brief-Cope

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**Brief - Coping Orientation to Problems Experienced Inventory
(Brief-COPE)****Instructions:**

The following questions ask how you have sought to cope with a hardship in your life. Read the statements and indicate how much you have been using each coping style.

		I haven't been doing this at all	A little bit	A medium amount	I've been doing this a lot
1	I've been turning to work or other activities to take my mind off things.	1	2	3	4
2	I've been concentrating my efforts on doing something about the situation I'm in.	1	2	3	4
3	I've been saying to myself "this isn't real".	1	2	3	4
4	I've been using alcohol or other drugs to make myself feel better.	1	2	3	4
5	I've been getting emotional support from others.	1	2	3	4
6	I've been giving up trying to deal with it.	1	2	3	4
7	I've been taking action to try to make the situation better.	1	2	3	4
8	I've been refusing to believe that it has happened.	1	2	3	4
9	I've been saying things to let my unpleasant feelings escape.	1	2	3	4
10	I've been getting help and advice from other people.	1	2	3	4
11	I've been using alcohol or other drugs to help me get through it.	1	2	3	4
12	I've been trying to see it in a different light, to make it seem more positive.	1	2	3	4
13	I've been criticizing myself.	1	2	3	4
14	I've been trying to come up with a strategy about what to do.	1	2	3	4
15	I've been getting comfort and understanding from someone.	1	2	3	4
16	I've been giving up the attempt to cope.	1	2	3	4

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		I haven't been doing this at all	A little bit	A medium amount	I've been doing this a lot
17	I've been looking for something good in what is happening.	1	2	3	4
18	I've been making jokes about it.	1	2	3	4
19	I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.	1	2	3	4
20	I've been accepting the reality of the fact that it has happened.	1	2	3	4
21	I've been expressing my negative feelings.	1	2	3	4
22	I've been trying to find comfort in my religion or spiritual beliefs.	1	2	3	4
23	I've been trying to get advice or help from other people about what to do.	1	2	3	4
24	I've been learning to live with it.	1	2	3	4
25	I've been thinking hard about what steps to take.	1	2	3	4
26	I've been blaming myself for things that happened.	1	2	3	4
27	I've been praying or meditating.	1	2	3	4
28	I've been making fun of the situation.	1	2	3	4

Developer Reference:

Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the brief cope. *International journal of behavioral medicine*, 4(1), 92-100.

Appendix D**Information Form**

What is this study about?

My name is Kevin O' Reilly, and I am a final year student in the BA (Hons) psychology degree in The National College of Ireland. As part of our degree we must carry out a research project in our final year. For this study we are looking for adults over the age of 18. You don't even have to play Dungeons & Dragons to take part.

What will taking part in the study involve?

If you take part in our research you will be asked to discuss some demographic questions on age, gender, whether or not you play Dungeons and Dragons, and how often you play the Table top RPG. This questionnaire will then be followed by the Hospital Anxiety and Depression scale, and finally the Brief-COPE inventory. The study will take approximately 10 minutes to complete and is not timed, so you may take as many breaks as you need while completing it.

All information given in the study will be strictly confidential. You will be asked to sign a consent form before taking part in the study.

Who can take part in the study?

You may take part in this study if you are over the age of 18 years old. You may take part in the study regardless of whether you have ever played Dungeons & Dragons.

Do I have to take part in this study?

Participation in the research is completely voluntary. You do not have to take part and the decision to not take part will have no consequences for you. If you do decide to take part in the study, you will retain the right to withdraw from participation at any time prior to submission of your answers. You will not suffer any penalty for withdrawing from the research at any stage.

What are the possible risks and benefits of taking part in the study?

There are no direct benefits to the individual participant in this study, however the results of this study may be beneficial to future research within this research topic. There is a possibility that some participants may experience some minor distress while taking part in the questionnaire, if the questionnaire causes you to reflect on any difficult experiences, or if you become distressed or upset during the questionnaire, feel free to take a break or to stop participation completely. Information about relevant support services will be given to participants on completion of the study in case any issue arises.

Will taking part in the study be confidential?

The questionnaires in the current study are completely anonymous, it will not be possible to identify a participant based on their responses to the questionnaire. All data collected during the study will be treated with the strictest confidence. Only the researcher and their academic supervisor will have access to the data collected. Data will be retained and managed in accordance with the NCI data retention policy. Note that anonymised data may be archived on an online data repository, and may be used for secondary data analysis.

Running head: COPING THROUGH DUNGEON CRAWLS

What will happen to the results of the study?

The results of the study will be presented in my final dissertation, which will be submitted to The National College of Ireland. The results may also be presented at conferences and/or submitted to an academic journal for publication.

Who should you contact for further information?

If you have any further questions or would like more information on the study, please don't hesitate to email me at the address below.

Kevin O'Reilly: Researcher – Kevinoreillystudent@gmail.com

Dr. Conor Nolan: Research Supervisor - Conor.nolan@ncirl.ie

- **I confirm I have read the information leaflet**

Appendix E

Coping through Dungeon Crawls: Relationships between Dungeons & Dragons and Coping with anxieties and depression.

Please read this consent form in its entirety before continuing on to the study

- I voluntarily agree to participate in this research study.
 - I have agreed to participate with the knowledge that I can withdraw from the study at any time prior to submission of answers.
 - I understand that I cannot withdraw permission to use data from my questionnaire after it has been submitted
 - I have had the purpose and nature of the study explained to me in writing.
 - I understand what participation in this study involves.
 - I understand that I will not benefit directly from participating in this research study.
 - I understand that all information I provide for this study will be treated confidentially.
 - I understand that in any report of the results of this research my identity will remain anonymous.
 - I understand that this signed consent form will be retained in the National college of Irelands Database for two years after the study is completed.
 - I understand that under freedom of information legislation that I am entitled to access the information I have provided at any time while it is in storage as specified above.
 - I understand that I am free to contact any of the people involved in the research to seek further clarification and information
- I confirm that I have read and agree to the statements made on this consent form.

Appendix F

Debrief Form

Please make sure to click the submit button at the bottom of this page, if you wish for your responses to be included in the study

Thank you for participating as a participant in our current study concerning the relationships between playing Dungeons & Dragons and coping with anxieties and depression.

- The current study aims to investigate whether there is a relationship between Playing Dungeons & Dragons and coping with Anxiety and depression
- The study also aims to investigate whether there is a difference in coping scores between Dungeons & Dragons players and non-Dungeons & Dragons players
- The study will investigate whether there is a difference in depression and anxiety scores between the two groups.
- Finally, the study will investigate whether there is a relationship between coping styles and depression and anxiety scores between the two groups

I thank you again for your participation in this study and greatly appreciate your contribution to the research! If you have any friends, game groups or family that meet the criteria and are eligible to take part in the study, then please feel free to share the link with them.

If you have any questions regarding the study, please contact myself, the researcher or my supervisor Dr. Conor Nolan at the emails below.

Kevin O'Reilly: kevinoreillystudent@gmail.com

Dr. Conor Nolan: Conor.nolan@ncirl.ie

In the event that you feel distressed by your participation in this study by any of the sensitive topics covered in the questionnaires, we encourage you to call or text any of the following numbers:

Samaritans: 116 123

LGBT Helpline: 1890929 539

Aware: 1800 804 848

HSE mental health information line: 1800 111 888

50808: Text HELLO to 50808

PIETA: 1800 247 247

