Changes in Diet, Coping, and Exercise Before and During Lockdown Amongst College

Students

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CHANGES IN DIET, COPING, AND EXERCISE BEFORE AND DURING LOCKDOWN

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Abstract

The present study examined differences in diet, coping, and exercise levels before and during the lockdown, while also analysing the relationship between diet, coping, and exercise levels during lockdown (cv) with gender, age, location, diet before lockdown, coping before lockdown, and exercise levels before lockdown (pv). Finally, this current study investigates the relationship between before and during lockdown variables, diet, coping, and exercise levels. The present study sought to expand on current research on the changes over the course of the lockdown by investigating these variables together within the same sample. A total of 145 participants completed questionnaires measuring their diet levels, coping levels, and exercise levels, before and during the lockdown. T-test analysis showed no significant difference in exercise levels before and during the lockdown, however diet and coping levels showed significant difference. Multiple regression analysis revealed that diet before lockdown was the strongest predictor of diet during lockdown, coping before lockdown was the strongest predictor for coping during lockdown and exercise before lockdown was the strongest predictor of exercise during lockdown, predictor variables; age, gender, location were not of significance. Correlation analysis showed a significant relationship between diet before lockdown and diet during lockdown, coping before lockdown and coping during lockdown, and exercise before lockdown and exercise during lockdown.

Table of Contents

CHANGES IN DIET, COPING, AND EXERCISE BEFORE AND DURING LOCKDOWN

Introduction

Diet, Coping, and Physical activity play a vital role in our overall mental and physical health. From research, we know that a poor diet can lead to mental distress and disorders (Bremner et al., 2020), good coping skills can reduce depressive symptoms (Ulleberg et al., 2021), and moderate exercise can reduce coronary heart disease (Vuori, 2001). Studies have investigated each of these variables over the course of the pandemic and the results vary.

A study which was conducted to investigate changes in diet during the first lockdown in Germany (Palmer et al., 2021), found that one quarter of the participants (22.3%) reported less frequent meat and sausage consumption, and a fifth reported less frequent frozen ready meals consumption during the lockdown. The study also found that there was an increased consumption of sweets and cakes by half of the participants, and for coffee by a third of the participants. Overall, food intake changed in the entire sample during the lockdown. (Palmer et al., 2021). General physical activity increased in 37.2% of the sample. Increased exercise was reported by 44.2% of the participants.

Similarly, a study investigating Changes in Lifestyle and Dietary Habits during COVID-19 Lockdown in Italy (Prete et al., 2021) discovered that 67% of participants reported changes in their eating habits compared to the period before the lockdown. Participants were aged between 16 and 62 years (mean age 29.8 years), 72% were women, 79% were unmarried, 43% were students and 82% were residents of southern Italy. The study looked at dietary changes between males and females, used factors such as gender, location, age when looking into physical activity level for low Mediterranean diet adherence, found to be statistically significant in men and women.

Likewise, a similar study looked at diet changes during the lockdown in Spain (Pérez-Rodrigo et al., 2021) and found that patterns show changes toward healthier habits with increased consumption of vegetables, fruits, legumes, and fish. In this study, change in physical activity was main predictor in eating habits during lockdown. During lockdown, significantly higher proportion of women reported being usually more active. The proportion of people with poorer diet quality than their usual diet was lower during lockdown. For people who were less active than usual during confinement, exercise increased during lockdown. For people who were less active than usual, they showed lower diet scores. The study further highlights people under 55 years were associated with higher odds of being classified in the more active cluster, especially the younger people aged 18–34 years compared to those aged 55 years and over. This study looks at age in relation to physical activity but fails to address other predictive factors.

One study looking at eating habits during the lockdown in Italy (Grant et al., 2021). found that before the lockdown, sugary drink consumption was reported by one fourth of respondents, and most participants declared not using butter and margarine as added fat, preferring to use olive oil. Eating habits different from Mediterranean Diet recommendations were reported by half of the sample, who consumed red meat more than once a week and did not follow the correct consumption of whole grain cereals. In addition, adding sugar to drinks was a common habit and eating sweets and pastries was frequently reported, three or more times per week.

The dietary changes during the confinement led to a consumption pattern more in line with the Mediterranean Diet principles. There were statistically significant differences among high and low diet groups were observed for the consumption of some foods either in term of intake increasing or decreasing. Cluster analysis applied to the 4 considered components led

to identifying 4 groups of individuals. A large proportion of population increased diet habits during the lockdown.

Another study investigated nutritional behaviours in polish adults before and during the lockdown, (Błaszczyk-Bebenek et al., 2020) which found that statistically significant differences were observed before and during confinement as regards the nutritional status. This study used age, location, gender as demographics but not as predictive factors.

In relation to coping before and during the lockdown, one study showed increases in eating fruit and vegetables (FV) and home prepared foods, both of which are viewed as positive dietary choices, were associated with decreased food insecurity, and increased adaptive coping styles. (Coulthard et al., 2021). Pre lockdown tendencies to overeat and higher BMI coupled with maladaptive coping strategies were associated with increases to emotional eating (EE) consumption. Adaptive coping strategies were associated with increased home cooking and FV consumption. This was the first study to show that eating behaviours during the pandemic were associated with adoption of coping strategies.

A further study (Fluharty et al., 2021) discovered that active coping strategies were more common amongst women. Supportive coping strategies were similarly more common in women. People living with others were more likely to draw on support strategies, as were people who lonely, who lived in urban areas, and who had a diagnosed mental health condition. Avoidant coping strategies were used more by women and young adults. Similarly, a study (Kim et al., 2021) found that in terms of coping this study showed that high resilience, family functioning, and spiritual support were predictors of lower stress, anxiety, and depression. Finally, research suggests (Fluharty et al., 2021) that participants with greater use of problem focused, avoidant, and socially supportive coping had higher mental health symptoms at the start of lockdown in the UK, while those with less use of emotion-focused

coping had higher initial symptoms. Mental distress decreased over 21 weeks as lockdown continued and was gradually eased. Coping was only measured at one timepoint and therefore they were not able to examine changes in coping strategy across time.

One study (Robertson et al., 2020) found that there was no significant change in activity levels during lockdown for participants who reported that they did not engage in any exercise before lockdown. However, for participants who already engaged in exercise, the frequency of training increased during lockdown. Likewise, the percentage of participants that reported engaging in higher levels of exercise (at least five times per week) significantly increased from 6% before lockdown to 16% during lockdown.

Research conducted (Constandt et al., 2020) found among those that were classified as low active people before the COVID-19 lockdown, 58% were exercising more, 5% as much, and 7% less during the lockdown than in the period before the lockdown. The remaining 30% did not really exercise at all during the lockdown. A total of 61% of the low active people found more time to exercise than prior to the lockdown. For sedentary behaviour, 40% reported that they sit more, 36% sit as much, and 24% sit less than before the lockdown.

A similar study (Wickersham et al., 2021) found evidence for a gradual increase in the number of steps walked per week following the commencement of UK nationwide lockdown. The study also showed a decrease in running behaviour following the commencement of lockdown, whereas previous studies found that physical activity among female students increased between pre- and during lockdown. Along with this, a further study (Martinez-de-qeul et al., 2020) found that being confined at home imposed a structural barrier to maintaining a physically active lifestyle. Research was conducted on the comparison of activity levels amongst youth before and during the lockdown. Significant interactions were

CHANGES IN DIET, COPING, AND EXERCISE BEFORE AND DURING LOCKDOWN

found between physical activity status before lockdown and the change in physical activity during lockdown. The study aimed to provide information regarding the impact of the mandatory confinement on the physical activity.

Furthermore, a study investigating physical activity levels before lockdown (Maltagliati et al., 2021) findings showed that physical activity habit strength decreased following a context change, especially among individuals with strong before-lockdown, an increase in physical activity habits was observed among individuals with weak before-lockdown habits. Also, one study (Yang et al., 2020) discovered youth activity patterns had also significantly changed before and during lockdown, including the decreased frequency of engaging in leisure-time moderate−/vigorous-intensity physical activity, and leisure-time walking activities.

Another study aimed to compare physical activity levels before and during the pandemic lockdown among adolescent Polish youths (Bronikowska et al., 2021) in relation to meeting the World Health Organization's (WHO) recommendations of moderate-to-vigorous physical activity and identify potential environmental factors that may affect these levels. Data analyses showed a significant difference between pre- and post-test within the group of adolescents who did not meet the WHO's moderate to vigorous physical activity recommendations before the lockdown. In post-testing, 13.4% of this original group increased the frequency of physical actvity from 2.6% up to 5.4% days per week on average.

Further research aimed to explore longitudinal patterns of physical activity and factors associated with them. (Bu et al., 2021). This study examined sociodemographic and health-related predictors of the patterns of physical activity growth trajectories. Analyses identified six classes of growth trajectories, including three stable classes showing little change over time (62.4%), two classes showing decreasing physical activity (28.6%), and one class

showing increasing physical activity over time (9%). When comparing the three stable classes (inactive, active, and highly active), they found no gender or urban/rural differences between them. A range of factors were found to be associated the class membership of physical activity trajectories, such as age and gender.

These studies have highlighted how diet, coping, and exercise has changed before and during lockdown. Some factors that have been included in the research above are gender, location, and age. The studies fail to assess differences in diet, exercise, and coping, before and during lockdown. Differences between criterion variables; diet during lockdown, coping during lockdown, exercise during lockdown, predictor variables; gender. location, age, diet before lockdown, coping before lockdown, and exercise before lockdown are also not adressed. Finally, this study aims to understand the relationship between diet before lockdown and during lockdown, coping before lockdown and during lockdown, and coping before lockdown and during lockdown, something which has not been explored. We hypothesise that from the above research, diet levels will decrease, coping levels will increase, and exercise levels will increase during the lockdown, that gender, age, and location are predictive factors of diet, coping, and exercise levels during lockdown, and finally that there will be a positive relationship between diet, coping, and exercise before and during the lockdown.

Method

Participants

The sample of the current study consisted of 61 males (42.1%), 83 females (57.2%) and non-binary (0.1%). This was calculated using descriptive statistics. Participants came from urban, suburban, and rural areas in Ireland. Participants ranged in age from 18-59, with the average age being 29 (SD=10.31). Participants were approached using convenience sampling through social media sites such as Facebook, LinkedIn, and Instagram.

Measures/Materials

The study questionnaire was comprised of demographic questions and three distinct scales using Google Forms, a survey builder. The demographic questions were administered to gain a general profile of the participants in this study, questions regarding their gender, age, and residing area were included for this section.

The Validated 14-Item Questionnaire of Mediterranean Diet Adherence was used (Martínez-González et al., 2012) This questionnaire was used to assess diet levels. It is easy to understand and short in nature so will be convenient for participants to answer. The questionnaire focuses on oil, fruits, vegetable, and meat consumption. Participants are granted a score of 1 point for each question and criteria for each question point is seen in appendix 1. A score of less than 7 indicates a poor diet, whereas average score is 8-9, and a score above 10 indicates a healthy diet. (see appendix 3)

The Coping Self-Efficacy Scale (Chesney et al., 2006) Cronbach Alpha: .962. This scale was used to measure participant coping levels. This is a 26-item measure of perceived self-efficacy for coping with challenges and threats. Scoring includes the sum of individual scores, with a low score indicating lower levels of coping and high score indicating higher levels of coping. (See appendix 4)

The Godin Leisure Time Exercise-Questionnaire (Stratton et al., 2008) Cronbach Alpha: .787. This scale measures exercise levels. The scale is a 4-item self-administered questionnaire with the first three questions seeking information on the number of times one engages in mild, moderate, and strenuous bouts of at least 15 min duration in a typical week. To calculate the scores, mild exercise scores were multiplied by 9, moderate exercise scores were multiplied by 5, and strenuous exercise scores were multiplied by 3. These scores were totalled and individuals reporting a score of more than 24 are classified as active, 14-23 moderately active, and a score of less than 14 are classified as insufficiently active/sedentary. (See appendix 5)

Design

The study implemented a cross-sectional, observational research design and adopted a quantitative approach. For hypothesis one, there were two dependent variables grouped for each time point which were as follows: diet levels before lockdown and diet levels during lockdown, coping levels before lockdown and coping levels during lockdown, and finally exercise levels before lockdown and exercise levels during lockdown. For Hypothesis two, the criterion variables (cv) were diet levels during lockdown (DietDL), coping levels during lockdown, (CSESDL), and exercise levels during lockdown (EXDL) and diet levels before lockdown, coping levels before lockdown, coping levels before lockdown, age, gender, and location as predictor variables (pv). For our third hypothesis, variables diet, coping, and exercise before and during the lockdown were used.

Procedure

Consent was obtained through a consent form/information sheet that was provided directly before the questionnaire (see appendix 1). Participants were given a brief description of the study and the time frame the study will take to complete, roughly 10-15 minutes.

Exclusion criteria included the participant had to be at least 18 years of age and inclusion criteria that they must be a college student. Participants were able to withdraw from the study at any point, without penalty. This was clearly stated in the consent form. The participants had to tick a 'yes' box consenting they have read the participant information sheet and agree to take part in the study. Once they had agreed to this, they were able to proceed with the questionnaire. Participants were the required to complete the 14-Item Mediterranean Diet Adherence Questionnaire, followed by The Coping Self Efficacy Scale, and finally The Godin Leisure Time Exercise Questionnaire. Once they had completed the three questionnaires the debriefing sheet followed. Here, participants were provided with a debriefing form where myself and my supervisor's contact information was provided as well as the necessary helplines. This encouraged participants to reach out and seek help if the questionnaire caused any distress to them. (See appendix 2)

Ethical Considerations

All data was collected within accordance with the ethical guidelines of NCI. The risks and benefits of partaking in the study were clearly outlined and there was no incentive to take part, and all participants provided informed consent. Participants were informed that if the study receives a grade of 2.1 or above, it will be published in the NCI library for all students, lecturers, and visitors alike with access to the library to view it. This was communicated to all participants by explicitly stating this on the debriefing form. Helplines, such as bodywhys, and the Samaritans contact details were provided in the debrief form for those that felt distress because of taking part in the study (See Appendices 1 & 2)

CHANGES IN DIET, COPING, AND EXERCISE BEFORE AND DURING LOCKDOWN

Results

Descriptive Statistics

The current data is taken from a sample of 145 participants (n=145). This consisted of 56.9% of males (n=84) and 41.4% of females (n=60). A large proportion of the sample came from urban areas 42.8% (n=62); 38.6% suburban areas (n=56), and 18.6% (n= 27) from rural areas. For diet levels before lockdown, 114 participants reported <7 (78.6%) whereas during lockdown 126 (86.9%), 27 reported 8-9 (18.6%) and 16 (11%) during lockdown, and 4 reported > 10 (2.8%) before lockdown, whereas during lockdown 2 (1.4%). Coping levels before lockdown showed 136 (93.8%) participants reported high levels of coping whereas during lockdown 9 (6.2%) during lockdown. For exercise levels, 71 participants (49%) scored >24 before and during the lockdown, 15 (10.3%) scored 14-23 before lockdown, whereas it was18 (12.4%) during lockdown. 22 (15.2%) scored <14 before lockdown, whereas it was 20 (13.8%) during lockdown. For exercise frequency before lockdown, 51 (35.2) % of participants chose often, 61(42.1%) sometimes, and 30 (20.7) never/rarely. During lockdown, participants chose; 61 (42.1%) often, 47 (32.4%) sometimes, 33 (22.8%) never/rarely.

There are seven continuous variables including, age, diet before lockdown (Diet BL), diet during lockdown (Diet DL), coping before lockdown (Coping BL), coping during lockdown (Coping DL), exercise before lockdown (Exercise BL), exercise during lockdown (Exercise DL).

CHANGES IN DIET, COPING, AND EXERCISE BEFORE AND DURING LOCKDOWN

Table 1

Descriptive statistics for continuous variables Age, Diet BL, Diet DL, Coping BL, Coping

DL, Exercise BL, Exercise DL

Variable	*M* [95% CI]	*SD*	Range
Age	28.38	11.564	60
Diet BL	1.24	.490	2
Diet DL	1.14	.385	2
Coping BL	1.06	.242	1
Coping DL	1.19	.446	3
Exercise BL	.90	1.316	4
Exercise DL	.92	1.287	4

Note. M=Mean, SD=Standard Deviation

Inferential Statistics

Results showed that participants exercise levels increased during lockdown (M=48.56

SD= 33.569) compared to before lockdown (M= 44.31, 29.692), however, a repeated

measures t-test found exercise level significance as p=.204, t (103) = -1.278. Coping levels

decreased during lockdown (M=147.57, SD=49.437), compared to before lockdown

(M=171.94, SD= 40.915). Paired samples t-test analysis found total difference in coping

before and during the lockdown to be significant p < .001, t (144) = 5.317. Diet levels

decreased during lockdown (M=5.60, SD= 1.887). compared to before lockdown (M=6.14,

SD= 1.764). Diet levels were found to be significant in a repeated measures t test, p < .001 t

(144) =3.616.

A standard multiple regression analysis was conducted to compare the relationships

amongst criterion variables: coping time 2, diet time 2 and exercise time 2, and predictor

variables coping time 1, diet time 1, exercise time 1, age, gender, and location. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, and homoscedasticity. Tests for multicollinearity confirmed that Tolerance values were above 1, and VIF values below 10. This concludes that these results indicate no violation of the assumption of multicollinearity and that the data are therefore suitable for multiple regression analysis.

For criterion variable exercise time 2, 24.6% of variance was explained by the predictors. ($f(df) = 103$, $p < .001$). Time one exercise was statistically significant, and the strongest predictor of time 2 exercise. (β)=.479, p= <.001. Refer to regression table below to see full results for each individual predictor. For criterion variable diet time 2, 27.7% of variance was explained by the predictors. ($F(df) = 107$, $p < .001$) diet time one was the strongest predictor of diet time 2. (β) = .458, p< .001. Refer to regression table below to see full results for each individual predictor. For criterion variable coping time 2, 12% of variance was explained by the predictors. ($F(df)= 107$, $p = .067$). coping time 1 was the strongest predictor of coping time 2. (β)= .236, p= .017. Refer to regression table below to see full results for each individual predictor.

Table 2

Standard multiple regression table for Diet DL

Variable	R^2	B	SE	β	t	p
	.12**					
Gender		-.151	.321	-.042	-.471	.639
Urban Location		.132	.449	.034	.293	.770
Suburban Location		.292	.438	.077	.666	.507
Age		-0.11	.014	-.070	-.805	.423
Diet BL		.498	.094	.458	5.284	.000
Coping BL		-.001	.004	-.030	-.335	.738
Exercise BL		.012	.006	.192	2.160	0.33

Note. R2 = R-squared; β = standardized beta value; B = unstandardized beta value; SE = Standard errors of B; N = 67; Statistical significance: ***p < .001

Table 3

Standard multiple regression table for Coping DL

Variable	R^2	B	SE	β	t	p
	.12**					
Gender		-.679	9.426	-.007	-.072	.943
Urban Location		2.375	13.095	.024	.181	.856
Suburban Location		-2.431	13.166	-0.24	-.185	.854
Age		.855	.417	.200	2.050	.043
Diet BL		-3.980	2.692	-.142	-1.478	.142
Coping BL		.285	.118	.236	2.423	.017
Exercise BL		.046	.160	.028	.287	.775

Note. R2 = R-squared; β = standardized beta value; B = unstandardized beta value; SE = Standard errors of B; N = 67; Statistical significance: ***p < .001.

CHANGES IN DIET, COPING, AND EXERCISE BEFORE AND DURING LOCKDOWN

Table 4

Standard multiple regression table for Exercise DL

Variable	R^2	B	SE	β	t	p
	.246					
	***					
Gender		-9.098	6.120	-.137	-1.487	.140
Urban Location		1.962	8.502	.029	.231	.818
Suburban Location		1.863	8.548	.027	.218	.828
Age		-.054	.271	-.018	-.198	.843
Diet BL		-1.640	1.748	-.085	-.938	.351
Coping BL		-.138	.076	-.166	-1.809	.074
Exercise BL		.537	.104	.479	5.153	.000

Note. R2 = R-squared; β = standardized beta value; B = unstandardized beta value; SE = Standard errors of B; N = 67; Statistical significance: ***p < .001

Preliminary analyses were performed to ensure no violation of the assumptions of normality. There was a moderately positive relationship between diet levels before lockdown and diet levels during lockdown, the coefficient of determination tells us there is a 9% variance between the two variables. (r=.30, n=145, p<.001). There was a positively weak relationship between coping levels before lockdown and coping levels during lockdown, the coefficient of determination tells us there is a 6.76% variance between the two variables. (r=.26, n=145, p<.001). There was a moderately positive relationship between exercise levels before lockdown and exercise levels during lockdown, the coefficient of determination tells us there is a 18.49% variance between these two variables. (r=4.3, n=145, p<.001).

Table 5

Correlation Table for Diet BL, Diet DL, Coping BL, Coping DL, Exercise BL, Exercise DL

Variable	1.	2.	3.	4.
Diet BL	-			
Diet DL	.30***			
Coping BL		-		
Coping DL		.265***		
Exercise BL			-	
Exercise DL			.429***	

Note: *** p<.001

To summarize, Paired samples t-test analysis found the difference between coping before the lockdown and during the lockdown to significant, as well as diet levels before the lockdown and diet levels during the lockdown to be significant. Exercise levels before the lockdown and exercise levels during the lockdown were not significant. Diet levels before lockdown was the biggest predictor of diet levels during the lockdown, coping levels before the lockdown was the biggest predictor of coping levels during the lockdown, and exercise levels before the lockdown was the strongest predictor of coping levels during the lockdown. There is a significant correlation between diet, coping, and exercise levels before lockdown and during lockdown.

Discussion

The results indicate that there was a difference in levels of diet, coping, and exercise levels before and during lockdown. Diet and coping levels decreased while exercise levels increased. Following this, the findings concluded that diet before lockdown was the strongest predictor for diet during lockdown, similarly for coping and exercise. Finally, the data suggests that there were positive significant relationship amongst all three variables at both time points. The results support part of our first hypothesis that diet levels will increase, and exercise levels will increase, however fails to support part of our hypothesis that coping levels will increase. We expected some relationship in predictor variables for age, gender and location compared with diet, coping, and exercise during lockdown as seen in previous studies, but no significant change was found. We did however find a relationship between lockdown variables for diet, coping, and exercise. Our third hypothesis was satisfied, as the results indicated a positive significant relationship between before and during lockdown variables for diet, coping, and exercise.

These results build on existing evidence of change over time and agree with previous research (Prete et al., 2021) that there is a change in diet over time. What our study highlighted was what those changes were, i.e., if they had increased or decreased. Our results do not support the theory that age, gender and location are significant predictors in diet change during lockdown, compared to some study findings (Prete et al., 2021. What's more, in relation to physical activity, contrary to our results which reported physical activity as not a significant predictor to diet changes, one study (Pérez-Rodrigo et al., 2021) however did find physical activity to be a predictor of diet change during lockdown.

Similar findings suggest that diet changes were statistically significant (Błaszczyk-Bebenek et al., 2020) this study also used predictive factors age, gender, and location but like

CHANGES IN DIET, COPING, AND EXERCISE BEFORE AND DURING LOCKDOWN

our results found no association. With regards to coping, our study fails to explore diet association with coping. Perhaps future research can investigate variable association between diet, coping and exercise. (Coulthard et al., 2021). Our current study looks at coping in general, however it might be important to investigate various coping strategies/categories like those done in previous research (Fluharty et al., 2021) and to explore this in relation to diet and exercise, which should also be categorized to understand specific group results.

One thing our study lacks is specificity amongst the sample. For example, in a 2020 study (Robertson et al., 2020) when analysing activity changes over time, the sample is divided into participants who reported no exercise before lockdown and those who engaged in activity before lockdown. This is something future research should consider. Our results agree with this study in that exercise levels did increase over time.

One study found significance different to our regression analysis, (Martinez-de-qeul et al., 2020) which found significant difference in exercise levels before and during lockdown. Contrary to our results, indicated no significance in difference in exercise levels. Another study investigated physical activity levels pre and post lockdown. (Bu et al., 2021). Data analyses showed a significant difference between pre- and post-test within the group of adolescents who did not meet the World Health Organization requirements for physical activity. Our results again agreed with the hypothesis that physical activity levels increase over time.

Limitations

The scales used may not have measured the variables as accurately as possible. In particular, the 14-Item Mediterannean Diet Adherence Questionnaire although reliable, only contained 14 items. This could imply that the scale was not sufficient to capture true diet levels. Similarly in the Godin Leisure Time Questionnaire, this scale was also short in length,

containing four questions, including frequency of exercise. As seen in the above research, our study lacks specificity in groups before and during the lockdown and future studies may consider this. Exploring the changes after lockdown would be something to add to our current study and results. Due to time constraints the current research study failed to investigate this. Furthermore, as this is a cross-sectional observational study, no causality can be inferred and longitudinal research in future can adequately answer the researched questions posed. Lastly the study uses self-report measures so there is a possibility of bias within the sample, with participants potentially marking themselves with desired scores in relation to diet and exercise levels.

A strength of the present study is that it attempts to expand on current research on change over time during the lockdown. As this is a relatively knew topic, the study aims to add to the already existing research by establishing a change over time and if changes are of significance, which future research can apply. Our results add to the existing literature in that there is a change in these three variables over time, and contradicts some research in that we discovered coping levels to decrease. What's more, is this study establishes a positive relationship between before and during lockdown variables diet, coping, and exercise which has not been done.

Conclusion

To conclude our results, indicate that physical activity levels increased over time, whereas coping and diet levels decreased. There was a significant difference between coping and diet variables before and during lockdown however exercise levels showed no significance. Diet, coping, and exercise levels before lockdown were the strongest predictor of diet, coping and exercise levels during lockdown. There was a significant positive relationship between before and during lockdown variables diet, coping, and exercise. his

CHANGES IN DIET, COPING, AND EXERCISE BEFORE AND DURING LOCKDOWN

study adds to current research which establishes a difference, significance, and relationship between these variables. Future research may consider a longitudinal study looking at after lockdown effects.

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CHANGES IN DIET, COPING, AND EXERCISE BEFORE AND DURING LOCKDOWN

Appendices

Appendix 1

Participant Information Sheet

PLEASE READ THE FOLLOWING INFORMATION SHEET CAREFULLY:

What is the study about? I am a final year student in the BA in Psychology program at National College of Ireland. As part of our degree, we must carry out an independent research project. In this study we are investigating changes in coping, diet, and physical activity amongst college students before and during the lockdown.

What does the study involve? You will be asked to complete three questionnaires on diet, coping, and physical activity. You must respond to both questionnaires in relation to before and during the lockdown. This will be marked clearly as before lockdown, and during lockdown.

The questionnaire should take no longer than 10 minutes to answer.

Why have I been asked to participate? We would like to collect data on college students to understand changes in coping, diet, and exercise before and during the lockdown.

Are there any benefits to participating in the study? You will be part of an interesting study which aims to understand college students coping, diet, and exercise changes before and during the lockdown and to draw conclusions that could be beneficial to the population.

Are there any risks involved? There should be no risks involved in this study, any risks have been addressed in accordance with the ethical guidelines for research.

This research requires participants to meet the following criteria:

You must be at least 18 years of age

You must be a college student

Some things to consider before you agree to take part in this study:

There are topics dealing with diet, coping, and physical activity habits. If you are not comfortable in answering questions of this nature, then this study may not suit you.

If you are feeling overwhelmed before, during or after completion of these questionnaires, please feel free to contact:

BODYWHYS: (01) 2107906

CHANGES IN DIET, COPING, AND EXERCISE BEFORE AND DURING LOCKDOWN

SAMARITANS: 116 123

You have the right to withdraw before, during, and after this study.

This study will be anonymous.

All data will be stored safely and securely.

The results of this study will be presented in my final dissertation, which will be submitted to National College of Ireland. The results of the project may be presented at conferences and/or used in academic journals.

Relevant Contact Details:

Project Supervisor: Dr Robert Fox, robert.fox@ncirl.ie

Researcher: Claoine Dolan, x18103065@student.ncirl.ie

Appendix 2

Consent Form

☐I have read the participant information sheet in full, and I agree to take part in this study.

Appendix 3

Debriefing Sheet

Thank you for your participation in this study. If you are feeling distressed, please reach out to the following helplines:

BODYWHYS: (01) 2107906 SAMARITANS: 116 123

This study aims to understand changes in coping, diet, and exercise amongst college students before and during the lockdown. With your results, we hope to provide informative data that can be useful to the population.

Thank you for your time!

Appendix 4

Validated 14-item Questionnaire of Mediterranean diet adherence.

Questions	Criteria for 1 point
1. Do you use olive oil as main culinary fat?	Yes
2. How much olive oil do you consume in a given day (including oil used for frying, salads, out-of-house meals, etc.)?	≥4 tbsp
3. How many vegetable servings do you consume per day? (1 serving : 200 g [consider side dishes as half a serving])	≥2 (≥1 portion raw or as a salad)
4. How many fruit units (including natural fruit juices) do you consume per day?	≥3
5. How many servings of red meat, hamburger, or meat products (ham, sausage, etc.) do you consume per day? (1 serving: 100–150 g)	<1
6. How many servings of butter, margarine, or cream do you consume per day? (1 serving: 12 g)	<1
7. How many sweet or carbonated beverages do you drink per day?	<1
8. How much wine do you drink per week?	≥7 glasses

Questions	Criteria for 1 point
9. How many servings of legumes do you consume per week? (1 serving : 150 g)	≥3
10. How many servings of fish or shellfish do you consume per week? (1 serving 100–150 g of fish or 4–5 units or 200 g of shellfish)	≥3
11. How many times per week do you consume commercial sweets or pastries (not homemade), such as cakes, cookies, biscuits, orcustard?	<3
12. How many servings of nuts (including peanuts) do you consume per week? (1 serving 30 g)	≥3
13. Do you preferentially consume chicken, turkey, or rabbit meat instead of veal, pork, hamburger, or sausage?	Yes
14. How many times per week do you consume vegetables, pasta, rice, or other dishes seasoned with sofrito (sauce made with tomatoand onion, leek, or garlic and simmered with olive oil)?	

Appendix 5

Coping Self Efficacy Scale

Coping Self-Efficacy Scale

When things aren't going well for you, or when you're having problems, how confident or certain are you that you can do the following:

Cannot do at all				Moderately certain can do						Certain can do
0	1	2	3	4	5	6	7	8	9	10

For each of the following items, write a number from 0 –10, using the scale above.

When things aren't going well for you, how confident are you that you can:

1. Keep from getting down in the dumps.   _____

2. Talk positively to yourself.   _____

3. Sort out what can be changed, and what can not be changed.   _____

4. Get emotional support from friends and family.   _____

5. Find solutions to your most difficult problems.   _____

6. Break an upsetting problem down into smaller parts.   _____   99

7. Leave options open when things get stressful.   _____   99

8. Make a plan of action and follow it when confronted with a problem.   _____   99

9. Develop new hobbies or recreations.   _____   99

10. Take your mind off unpleasant thoughts.   _____   99

11. Look for something good in a negative situation.   _____   99

12. Keep from feeling sad.   _____   99

13. See things from the other person's point of view during a heated argument. _____ 99

14. Try other solutions to your problems if your first solutions don't work. _____ 99

15. Stop yourself from being upset by unpleasant thoughts.   _____   99

11.   Look for something good in a negative situation.   ____   99

12.   Keep from feeling sad.   ____   99

13.   See things from the other person's point of view during a heated argument.   ____   99

14.   Try other solutions to your problems if your first solutions don't work.   ____   99

15.   Stop yourself from being upset by unpleasant thoughts.   ____   99

please go on to next page ⮑

| 1 |

Coping Self-Efficacy Scale   v. 06-08-10

> When things aren't going well for you, or when you're having problems, how confident or certain are you that you can do the following:

Cannot do at all					Moderately certain can do					Certain can do
0	1	2	3	4	5	6	7	8	9	10
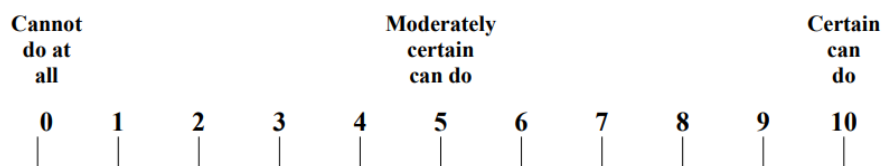
When things aren't going well for you, how confident are you that you can:

16.   Make new friends.   ____   99

17.   Get friends to help you with the things you need.   ____   99

18.   Do something positive for yourself when you are feeling discouraged.   ____   99

19.   Make unpleasant thoughts go away.   ____   99

20.   Think about one part of the problem at a time.   ____   99

21.   Visualize a pleasant activity or place.   ____   99

22.   Keep yourself from feeling lonely.   ____   99

23.   Pray or meditate.   ____   99

24.	Get emotional support from community organizations or resources.	_____	99
25.	Stand your ground and fight for what you want.	_____	99
26.	Resist the impulse to act hastily when under pressure.	_____	99

Appendix 6

Godin Leisure Time Questionnaire

During a typical **7-Day period** (a week), how many times on the average do you do the following kinds of exercise for **more than 15 minutes** during your free time (write on each line the appropriate number).

Weekly leisure activity score = (9 × Strenuous) + (5 × Moderate) + (3 × Light)

	Times per week		Totals
a) STRENUOUS EXERCISE (HEART BEATS RAPIDLY) (e.g., running, jogging, hockey, football, soccer, squash, basketball, cross country skiing, judo, roller skating, vigorous swimming, vigorous long distance bicycling)		X9	
b) MODERATE EXERCISE (NOT EXHAUSTING) (e.g., fast walking, baseball, tennis, easy bicycling, volleyball, badminton, easy swimming, alpine skiing, popular and folk dancing)		X5	
c) MILD/LIGHT EXERCISE (MINIMAL EFFORT) (e.g., yoga, archery, fishing from river bank, bowling, horseshoes, golf, snow-mobiling, easy walking)		X3	
WEEKLY LEISURE-TIME ACTIVITY SCORE			

CHANGES IN DIET, COPING, AND EXERCISE BEFORE AND DURING LOCKDOWN

Appendix 7

Paired Sample T Test Output

Appendix 8

Regression Analysis Output

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Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31606.380	7	4515.197	1.964	.067[b]
	Residual	229908.671	100	2299.087		
	Total	261515.051	107			

a. Dependent Variable: CSESDL

b. Predictors: (Constant), Age, TotalExBL, Location=Suburban, DietBL, Gender, CSESBL, Location=Urban

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	97.704	30.526		3.201	.002					
	CSESBL	.285	.118	.236	2.423	.017	.265	.235	.227	.928	1.078
	TotalExBL	.046	.160	.028	.287	.775	.023	.029	.027	.908	1.101
	DietBL	-3.980	2.692	-.142	-1.478	.142	-.095	-.146	-.139	.953	1.050
	Location=Urban	2.375	13.095	.024	.181	.856	-.006	.018	.017	.508	1.967
	Location=Suburban	-2.431	13.166	-.024	-.185	.854	.003	-.018	-.017	.519	1.926
	Gender	-.679	9.426	-.007	-.072	.943	.040	-.007	-.007	.929	1.076
	Age	.855	.417	.200	2.050	.043	.223	.201	.192	.924	1.082

a. Dependent Variable: CSESDL

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Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29206.880	7	4172.411	4.472	.000[b]
	Residual	89563.785	96	932.956		
	Total	118770.664	103			

a. Dependent Variable: TotalExDL

b. Predictors: (Constant), Age, TotalExBL, Location=Suburban, DietBL, Gender, CSESBL, Location=Urban
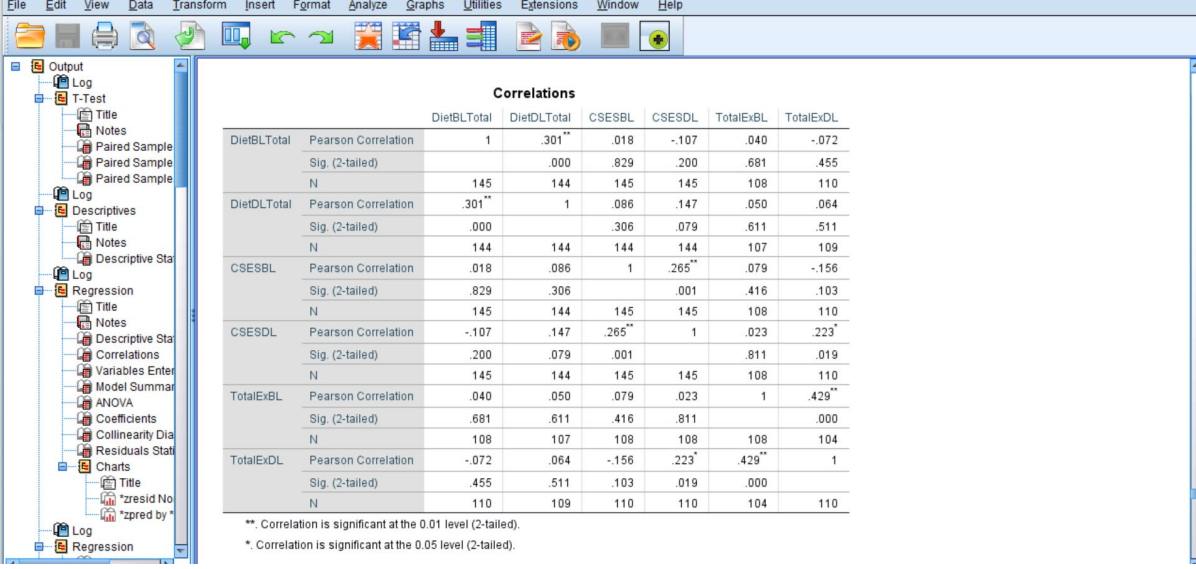
Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	70.686	19.819		3.567	.001					
	CSESBL	-.138	.076	-.166	-1.809	.074	-.156	-.182	-.160	.928	1.078
	TotalExBL	.537	.104	.479	5.153	.000	.429	.465	.457	.908	1.101
	DietBL	-1.640	1.748	-.085	-.938	.351	-.030	-.095	-.083	.953	1.050
	Location=Urban	1.962	8.502	.029	.231	.818	.091	.024	.020	.508	1.967
	Location=Suburban	1.863	8.548	.027	.218	.828	-.016	.022	.019	.519	1.926
	Gender	-9.098	6.120	-.137	-1.487	.140	-.060	-.150	-.132	.929	1.076
	Age	-.054	.271	-.018	-.198	.843	-.085	-.020	-.018	.924	1.082

a. Dependent Variable: TotalExDL

CHANGES IN DIET, COPING, AND EXERCISE BEFORE AND DURING LOCKDOWN

Appendix 9

Correlation Analysis Output

Correlations

		DietBLTotal	DietDLTotal	CSESBL	CSESDL	TotalExBL	TotalExDL
DietBLTotal	Pearson Correlation	1	.301**	.018	-.107	.040	-.072
	Sig. (2-tailed)		.000	.829	.200	.681	.455
	N	145	144	145	145	108	110
DietDLTotal	Pearson Correlation	.301**	1	.086	.147	.050	.064
	Sig. (2-tailed)	.000		.306	.079	.611	.511
	N	144	144	144	144	107	109
CSESBL	Pearson Correlation	.018	.086	1	.265**	.079	-.156
	Sig. (2-tailed)	.829	.306		.001	.416	.103
	N	145	144	145	145	108	110
CSESDL	Pearson Correlation	-.107	.147	.265**	1	.023	.223*
	Sig. (2-tailed)	.200	.079	.001		.811	.019
	N	145	144	145	145	108	110
TotalExBL	Pearson Correlation	.040	.050	.079	.023	1	.429**
	Sig. (2-tailed)	.681	.611	.416	.811		.000
	N	108	107	108	108	108	104
TotalExDL	Pearson Correlation	-.072	.064	-.156	.223*	.429**	1
	Sig. (2-tailed)	.455	.511	.103	.019	.000	
	N	110	109	110	110	104	110

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).