Title: Examining the depression and loneliness in emerging adults including LGBTQIA+ members in Ireland.

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Abstract

Aims: This study aimed to investigate better and understand the mental health of LGBTQIA+ and heterosexual young adults in an Irish Context. This study evaluated the difference in depression scores between LGBTQIA+ and non-LGBTQIA+ (cis-heterosexual) individuals. It also assessed the difference in loneliness levels between LGBTQIA+ and non-LGBTQIA+ groups. Finally, the study also investigated whether loneliness and depression correlate and whether loneliness predicts depression while controlling for LGBTQIA+ membership. **Methods:** An online questionnaire link was provided to participants (N=73) via posters around the campus, as well as using Facebook and Instagram posts. The survey included demographic questions, as well as a UCLA Loneliness scale and the Patient Health Questionnaire (PHQ-9). **Results:** The results showed no significant difference in depression scores between the LGBTQIA+ and non-LGBTQIA+ groups. Surprisingly the results also showed no significant difference in loneliness levels between the LGBTQIA+ and non-LGBTQIA+ groups. The hierarchical regression showed that loneliness was a predictor of depression, while controlling for LGBTQIA+ membership variable. Also a moderately positive correlation was found between loneliness and depression. **Conclusion:** The finding highlights the importance of examining the mental health of LGBTQIA+ and non-LGBTQIA+ members in the Irish context. No differences in loneliness and depression were found between the groups tested; therefore, future research could investigate further on a larger sample. Loneliness and depression were found to have a close relationship with one another; therefore, future research should examine whether loneliness can be a considerable risk factor for depression in young adults on a longitudinal level.

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Introduction

This research examines depression and loneliness among young adults identifying as LGBTQIA+ (lesbian, gay, bisexual, transgender, queer, intersex and asexual plus more) in Ireland using online questionnaires. This section will discuss a theory and previous literature mentioning mental health in LGBTQIA+ members. It will convey the importance of the research on depression and its relationship to loneliness in LGBTQIA+ members in emerging adults. To note: The author uses the LGBTQIA+ term, an inclusive and modern term used to describe different sexual orientations. However, studies might use different terms, such as "sexual minority individuals" or their definitions. These studies are still valid for this study as they overlap and help back up researchers' points using different terms.

People experiencing varying degrees of emotional, psychological, and social well-being should come into consideration when it comes to mental health. According to a recent World Health Organization (WHO) publication, 450 million people around the world suffer from mental health issues, with depression affecting one in every twelve people (World Health Organization Regional Office for Europe, 2019). Among most people, stressful life events can be mitigated by their capacity to regulate emotions, maintain healthy relationships and behaviours, and even eat well. However, on the other hand, others may become overwhelmed, resulting in significant mental health issues (World Health Organization Regional Office for Europe, 2019). As mental health continues to increase and impact different individuals around the world, this study wants to address the mental health problems of LGBTQIA+ as they might experience more negative stressors due to their sexual identity, for example, bullying or fear of coming out.

A well-researched theory that helps to understand why the LGBTQIA+ community might have more mental health disparities than heterosexual individuals is the minority stress theory (Meyer, 2003). The minority stress theory explains how beginning to experience or

fear anti-homosexual shame can cause distress, which can have severe consequences for individuals' mental or physical health (Lick et al., 2013). According to the minority stress model, an aggressive or anxious social environment frequently causes mental health distress; consequently, evidenced disparities in psychological health in the LGBTQIA+ community are socially developed (Meyer, 2003). The model represents three processes that result in minority stress due to sexual orientation. The first of these is distal or external stressors that seem to be environmental; these are perceivable and measurable (Meyer, 2003). The second are interactive proximal stressors containing expectations that external stressors will arise, as well as attentiveness that an individual should sustain to seek protection from these environmental disturbances. Lastly is the internalisation of the negative prejudice and stigma in society (Meyer, 2003; Valentine & Shipherd, 2018).

Distal stressors are typically external events that are mentally draining ranging from interpersonal victimisation to structural discrimination. Whereas proximal stressors are internal power struggles that LGBTQIA+ members encounter in reactions to their own exposures to environmental events, for example, anxiety about the future, stigma and hiding sexuality or internal homophobic struggles (Hall, 2018; Kia et al., 2021; Lick et al., 2013). Frameworks and other research also mentioned a variety of individual and social factors that could protect against provocations to mental health - support systems through friends or family, personal acceptance of sexual orientation, being in a healthy relationship and a positively accepting community (Hall, 2018; Meyer, 2003). However, the protective factors might not be just for LGBTQIA+ members to help with the added stress and increased chances to mental health problems.

Previous studies on sexual minority adolescents have found that they are more likely to experience psychosocial and mental health disorders such as depression, anxiety, self-harm, suicidal behaviour, posttraumatic stress disorder, disordered eating, and substance

misuse disorders than heterosexual youth (Guz et al., 2021; Marshal et al., 2011; Rodgers, 2017; Russon et al., 2022). Guz et al. (2021) studied mental health between sexual and gender minority adolescents to examine if sexual orientation and gender identity are correlated with depression and suicidality. They found that adolescents who were identifying as lesbian, gay, bisexual, queer and transgender were at a higher risk to suffer from depression and suicide thoughts, than their heterosexual peers. Furthermore, they found that teens who were questioning their gender identity or sexual orientation have increased chances of depression and suicide behaviours.

Similarly, meta-analysis found that sexual minority youth were at risk of developing psychological difficulties especially depression symptoms and suicide intentions (Marshal et al., 2011). Their main purpose of study was to summarise and outline differences in suicidality and depression of sexual minority and heterosexual youth. Their reviewing of existing research led to 30 studies meeting their criteria (less than 18 years of age and rates of depression and suicide) (Marshal et al., 2011). The results showed that sexual minority adolescents have higher suicidality rates and were more at risk of increased depression symptoms than their heterosexual mates (Marshal et al., 2011). Surprisingly, results showed bisexual individuals were five times more likely to have suicide behaviour than heterosexual peers (Marshal et al., 2011). Their study results go hand in hand with another review and meta-analysis that focused mostly on bisexual individuals and their link to depression and anxiety (Ross et al., 2018). The findings of this study suggested that depression and anxiety levels were lowest for heterosexuals and much higher for lesbians and gays and bisexuals, however, bisexuals scored the highest or equally when compared to other sexual orientation groups of lesbians and gays (Ross et al., 2018).

Overall, literature on LGBTQIA+ adults reveals a similar trend to that of adolescents, with poorer mental health than heterosexual adults. Furthermore, LGBTQIA+ adults have an

increased likelihood of experiencing depression, anxiety, drug abuse, unsafe sexual behaviour, and even eating disorders (Borgogna et al., 2019; Hughes et al., 2010; Koh & Ross, 2006; Peltzer & Pengpid, 2016; Westerfeld et al., 2001) as a result of stigmatisation or homophobia. In addition, research on LGBTQIA+ adults has found increased chances of substance use disorders due to victimisation, discrimination and sexual abuse (D'Augelli & Grossman, 2001; Hughes et al., 2010; Lee et al., 2016). A study focusing on Asian students age 15-24 years old found that the mental health issues of LGBTQIA+ students were more severe than non-LGBTQIA+ students (Peltzer & Pengpid, 2016). More precisely, they found that lesbian, gay, bisexual and transgender students reported higher levels of depression, suicide risks and were more likely to abuse drugs and alcohol (Peltzer & Pengpid, 2016). Borgogna et al. (2019) found the highest levels of anxiety and depression in transgender individuals when compared to heterosexuals. They also illustrated that LGBTQIA+ members showed higher levels of anxiety and depression when compared to heterosexuals, letting us understand that there is a relationship between depression and sexual orientation.

However, a research study done to investigate homophobia (internalised) and depression levels in lesbian, gay and bisexual as well as trans individuals (Yolaç & Meriç, 2020) found contradictory results as they were different from existing literature on depression. The results illustrated that depression scores were lower as most of the sexual and gender minority researched had levels of normal depression and only 6.4% had higher levels of depression (Yolaç & Meriç, 2020). This suggests that depression scores might not always be on the higher side for LGBTQIA+ individuals, giving way for a need to investigate more on depression. Another study was done by Westefeld et al. (2001) on lesbian, gay and bisexual college students investigating depression scores, loneliness and suicidal possibility comparing them to heterosexuals. The results showed a positive correlation between loneliness and depression exists with lesbian, gay and bisexual individuals, and noted that

lesbian, gay and bisexual college students were much more likely to be depressed and lonely than the control group of heterosexual students (Westefeld et al., 2001). This study is similar to Westefeld et al. (2001); however, the researcher will examine an Irish population, with an even younger age group, being more inclusive with LGBTQIA+ members, in addition to examining if loneliness predicts depression, making it different from the study discussed above.

Loneliness has been shown to be a key factor of depression among most age groups starting from youth and ending at old adulthood (Victor & Yang, 2012). To the author's knowledge, there are less peer-reviewed studies examining the relationship between loneliness and depression, and little or no studies examining its effect on sexual identity individuals, therefore, suggesting a gap in the literature that this study could fill. Two loneliness studies on LGBTQIA+ older generations state that sexual minority older adults are suffering higher loneliness or isolation levels than heterosexual older adults (Fokkema & Kuyper, 2007; Hughes, 2016). While McDanal et al. (2021) found a link between loneliness and adolescents. They found that sexual and gender minority individuals had the highest loneliness scores when compared to cis/heterosexual and sexual minority adolescents. Interestingly cisgender/sexual minority adolescents' loneliness levels did not differ much from the cis/heterosexual group, but there was a slight difference (McDanal et al., 2021).

Furthermore, results of a comparative meta-analysis indicate that LGBTQIA+ individuals have greater likelihood to report higher scores of loneliness than heterosexual people (Gorczynski & Fasoli, 2021). A systematic approach took place to identify if a specific difference in loneliness exists between LGBTQIA+ and heterosexual members; only four studies met all the criteria and were used in the review (Gorczynski & Fasoli, 2021). The meta-analysis reports LGBTQIA+ having more loneliness scores than heterosexuals, however, the

findings might lack generalizability, as all studies included were done in the USA or used different measures of loneliness (Gorczynski & Fasoli, 2021).

There has been found a small to medium effect size when investigating loneliness and sexual minority identity across children and adult individuals (Gorczynski & Fasoli, 2021). These results can be due to the stigmatisation and discrimination of LGBTQIA+ individuals or having weaker social support system experience than heterosexual individuals. An Australian comparative study investigating loneliness and its relationship with mental health and social factors among LGBTQIA+ individuals found a significant relationship between loneliness and the LGBTQIA+ group (Eres et al., 2021). Their results illustrate that LGBTQIA+ adults report increased levels of loneliness when compared to heterosexual individuals, as well as increased levels of depression and social anxiety (Eres et al., 2021). More research is needed on a global level when it comes to LGBTQIA+ members and loneliness levels.

The current study

As there is a lack of studies examining loneliness and its relationship to depression particularly in the context of LGBTQIA+ participants, this shows a gap in the literature. As well as not many studies looking at differences in mental health between LGBTQIA+ and non-LGBTQIA+ young adults. Therefore, this study will try to cover that gap by looking at depression and loneliness variables and their relationship in Ireland. There are many studies looking at LGBTQIA+ adolescent mental health (Marshal et al., 2011; Rodgers, 2017; Scannapieco et al., 2018; Guz et al., 2020) and even adulthood (Fredriksen-Goldsen et al., 2012; Koh & Ross, 2009; Yarns et al., 2016) but not many looking at the emerging adults on its own and not many looking at loneliness in that group specifically. Therefore, this study will test the population of young adults from 18 years to 26 years. During this specific age range, mental health problems exacerbate, like psychotic disorders (schizophrenia) or depression and anxiety (Arnett et al., 2014; MacLeod & Brownlie, 2014). Furthermore, the

brain continues to undergo rapid developmental modifications, including dendritic pruning and myelination of specific brain regions, which have been linked to emotional and cognitive processes (Arian et al., 2013; Leshem, 2016).

The research aims and objectives

This study aims to assess the impact of loneliness on the depression scores of the LGBTQIA+ group and the non-LGBTQIA+ group while living in Ireland. The research will also focus on the differences in mean depression scores between LGBTQIA+ and heterosexual participants. We will also examine the differences in mean loneliness scores between LGBTQ IA+ members and heterosexual members. Additionally, we will investigate if loneliness and depression correlate and or if loneliness predicts depression while controlling for LGBTQIA+ membership. These intentions produce the research questions and hypothesis listed below:

Research Question 1: Does mean loneliness score differ between young adult LGBTQIA+ and non-LGBTQIA+ groups?

Hypothesis 1: Mean loneliness score differs between young adult LGBTQIA+ and non-LGBTQIA+ groups.

Research Question 2: Does mean depression score differ between young adult LGBTQIA+ and non-LGBTQIA+ groups?

Hypothesis 2: Mean depression score differs between young adult LGBTQIA+ and non-LGBTQIA+ groups.

Research Question 3: Does loneliness score correlate with depression score in young adults, and/or predict depression score in young adults, controlling for LGBTQIA+ group membership?

Hypothesis 3: Loneliness score correlates with depression score in young adults, and predicts depression score in young adults, controlling for LGBTQIA+ group membership.

Methods

Participants

The participants were recruited using an online survey from November 14th,2022, to January 26th,2023. Therefore, using a convenient sampling method. Snowball sampling was also used, as the participants were allowed to share the survey with familiars. Several posters (6 in total) were also advertised around the college campus to collect more participants. The G*Power Statistical Analysis was applied to assess what sample size would give 95% power to detect effects of Cohen's $d = 0.8$. It was estimated based on an independent t-test analysis that a minimum of 86 participants were required for this study (37 in one group and 49 in the other). The statistical G*power analysis for hierarchical linear regression stated that around 48 participants would be needed to find large effect.

The original participant number we collected in total was 75; however, two participants were excluded due to not meeting the age requirements of 18 to 26 (17 and 29). For this reason, the total number of participants was 73. Within the sample of 73 individuals, there were two groups, including LGBTQIA+ individuals (N=31) and non-LGBTQIA+ individuals (N=42). The participation was completely voluntary and no compensation provided in taking part in the study.

Measures/Materials

At the start, participants were required to state the following demographic information – gender (male, female and other), age and years of education. Participants were also required to state their sexual orientation – whether they were members of the LGBTQIA+ community or cis/heterosexual/ non-LGBTQIA+ members. If they answered yes to being an LGBTQIA+ community member, a following question asked them to identify themselves from a following list – lesbian, gay, bisexual, queer, questioning, transgender, intersex and asexual,

non-LGBTQIA+ (cis/heterosexual) and prefer not to say. Once they answered these questions, they were led to two other measures.

Patient Health Questionnaire-9:

Depression scores were assessed using the Patient Health Questionnaire -9 (Spitzer et al., 1999). PHQ-9 is a self-reported nine-item scale designed to measure the level of depression an individual is in. Each item is measured on a four-point Linkert scale measuring from 0-3, with 0 being "not at all" and 3 being "nearly every day". The higher scores, such as 2 (more than half the days) and 3, indicate greater symptom severity and relative risk of severe depression. The scoring ranges from 0 to 27 and is scored by adding up all the scores for all nine items. The cut points range from 5, 10, 15 and 20, referring to the severity of depression – mild, moderate, moderately severe and severe. A study testing the validity of a PHQ-9 found great Cronbach's alpha showing .89 and mentioned its great test-retest reliability and internal consistency properties (Kroenke et al., 2001). In our study, Cronbach's alpha score was $\alpha = .87$.

UCLA Loneliness Scale:

Feelings of loneliness were measured using the revised UCLA Loneliness scale. This measure contains twenty questions assessing the objective feelings of loneliness and isolation. To assess the loneliness level, participants were asked to rate each item on a four-point Linkert scale (One being "never" and four being "always"). Positive questions of the measure (1,5,6,9,10,15,16,19,20) were reverse-scored to maintain continuous scoring. Example of positive items include - "How often do you feel that you are "in tune" with the people around you? Or How often do you feel that there are people you can talk to? After the reverse scoring the total score is computed by adding all the items asked. The higher the levels of total score, the more lonely the person feels. Russell (1996) examined the reliability and validity of the measure and found Cronbach's alpha to be high (.89 to .94). While

Cronbach's alpha of this research study was α= .91. Concluding that the scale used had excellent reliability in the current research project.

Design

A correlational and cross-sectional design was used for this research study design to analyse variable relationships without external variables' influence on them.

For the first research question, an independent t-test was performed- IV was LGBTQIA+ and non-LGBTQIA+ group, and DV was total depression. For the second hypothesis, an independent t-test was conducted - IV was LGBTQIA+ and non-LGBTQIA+ group, and DV was total loneliness. Finally, for the last research question, hierarchical regression was applied. Regression contained two predictor variables; LGBTQIA+ membership and loneliness, and the criterion variables were depression.

Procedure

Most of this research project's participants were collected using an online survey advertised on researchers' social media such as Facebook, Instagram and WhatsApp stories and posts. In addition, a couple of participants were collected via posters that were placed around the campus (See appendix F). Each post on the Instagram story involved information about the study's aims, requirements, participation and a link to the survey. Once the participants pressed the link, they were automatically brought to the survey. The first thing they were asked to read was the information sheet (see appendix A) that detailed all the information about the research study conducted and their rights of withdrawal. They were then asked to press "next" and were brought to the consent form (See appendix B). They were required to read the consent form thoroughly and give their consent in agreeing to participate in the study if meeting all the criteria listed on the form. To consent, they were asked to click "I consent" at the bottom of the page. Once the consent was collected, the participants were asked to fill in a couple of demographic questions, i.e. gender, age, sexual

orientation, and sexual orientation label. Afterwards, they were asked to fill in a Patient Health Questionnaire-9, which measured the levels of depression (See appendix D). The subsequent questionnaire followed was the UCLA loneliness scale (See Appendix E). For both questionnaires, participants were asked to fill in all the questions and be honest as possible. Once all the survey questions were filled in, the google form brought the participants to the debriefing sheet (See appendix C). The debriefing form included a thank you message to the participants and provided them with several support services to contact if needed. It also provided the contact information of both researcher and supervisor.

This research study was checked and approved to be conducted by the National College of Ireland Ethics Committee. The researcher also followed the ethical guidelines of The Psychological Society of Ireland's Code of Professional Ethics (Psychological Society of Ireland, 2010). The information sheet informed the study's risks and benefits, and the consent approval was collected before the start of the survey. Even though no pronounced physical harm was expected from this study, negative questions about the measures chosen could impact the participant. Therefore debriefing sheet outlined helpline contact details in case of mental harm caused due to taking the survey.

Results

Descriptive Statistics

Descriptive statistics for categorical variables can be seen in Table 1. The sample consisted of 73 young adults (18-26). A large amount of the sample involved 50 females (68.50%) and 22 males (30.10%), with one non-binary (1.40%). The sexual orientation group contained 31 LGBTQIA+ individuals (42.50%) and 42 non-LGBTQIA+ individuals (57.50%). Surprisingly a large proportion of the LGBTQIA+ sample consisted of 18 bisexual-labelled participants (24.70%).

Table 1

Frequencies for gender, sexual orientation groups and sexual orientation label (n=73)

Variables	Frequency	Valid %
Gender		
Male	22	30.10
Female	50	68.50
Non-binary	1	1.40
Sexual Orientation Groups		
Are you a member of the Lesbian, Gay, Bisexual, Transgender, Queer, Intersex and Asexual and more community (LGBTQIA+)	31	42.50
Are you a non- LGBTQIA+ individual (cis-heterosexual)	42	57.50
Sexual Orientation Labels		
Lesbian	5	6.80
Gay	4	5.50

Bisexual	18	24.70
Queer	3	4.10
Questioning	1	1.40
non-LGBTQIA+ individual (cis-heterosexual)	39	53.40
Prefer not to answer	3	4.10

Descriptive statistics for three continuous variables - age, total depression scores and total loneliness were examined. The mean, median, Standard Deviation and range (minimum and maximum) for each variable are displayed in Table 2 below. Depression and loneliness scores were normally distributed, as the histogram showed to some degree, a curved bell, and the Q-Q plot results showed slight deviation from the line. Age, however, was not normally distributed (Shapiro-wilk = $p<.001$). The mean scores show moderate depression (14) and moderate loneliness (46) levels in the current sample.

Table 2

Descriptive statistics for continuous variables Age, Total Depression and Total Loneliness

Variable	*Mean* [95% CI]	*Median*	*SD*	Range
Age	21.82[21.38,22.27]	21	1.91	19-26
Total Depression Scores	14.04[12.56,15.52]	15	6.33	2-26
Total Loneliness	46.04[43.99,48.82]	47	10.33	26-66

Inferential Statistics

Hypothesis one:

An independent samples t-test was performed to compare levels of depression (DV) between LGBTQIA+ and non-LGBTQIA+ participants (IV). Preliminary analyses were implemented to make sure no violation of the assumptions of normality (Shapiro-Wilk; p= .16) and homogeneity of variance (Levene test = .255). There was no significant difference in scores for LGBTQIA+ (M=14.74, SD=5.85) and non-LGBTQIA+ (M=13.52, SD=6.68; t(71)=0.81, p=.420, two tailed).

Hypothesis two:

An independent sample t-test was conducted to compare levels of loneliness (DV) between LGBTQIA+ and non-LGBTQIA+ participants (IV). Preliminary analyses were carried out prior to confirm no violation of the assumptions of normality (Shapiro -Wilk; p= .054); none less homogeneity of variance was broken (Levene- test = .008). There was no significant difference in loneliness scores for LGBTQIA+ (M=46.94, SD= 12.38) and non-LGBTQIA+ (M=46.02, SD= 8.66; t(50.75)=.35, p=.727, two tailed).

Hypothesis three:

Before analysis of hierarchical regression; the relationship between loneliness total score and depression scores was inspected using a Pearson product-moment correlation coefficient. Prior to running the test, preliminary analyses validated the assumptions of normality, linearity, and homoscedasticity. The results showed a moderate, positive correlation between the two variables ($r = .48$, $n = 73$, $p<.001$). This implies that total loneliness and total depression variables shared approximately 23% of the variance in common, referring to the idea that the elevated levels of loneliness associated with increased depression scores.

To investigate the third research question, the hierarchical multiple regression was used to assess whether Loneliness Total Score predicts Total Depression Score, controlling for LGBTQIA+ group membership. Preliminary analyses were performed to ensure that no assumptions of normality, linearity, multicollinearity, or homoscedasticity were violated. LGBTQIA+ member variable was inputted at phase one, explaining 0.9% of the variance in depression levels. After the entry of LGBTQIA+ membership and Loneliness at step 2, the total variance explained by the model as a whole was 23.1% F(2,70)=10.51, p<.001.

The model including both LGBTQIA+ membership inclusion and Loneliness explained an additional 22% of the variance in Total Depression Scores, beyond the variance explained by the first model that included LGBTQIA+ group inclusion only; R square change = .22, F(1,70)= 20.19. As shown in table 3 in the final model, one predictor variable was statistically significant, with the Loneliness score recording a beta value (b=.47,p<.001). At the same time, LGBTQIA+ members were not statistically significant (b=.08, p=.477).

Table 3

Hierarchical multiple regression

Variable	R^2	R^2 *Change*	*B*	*SE*	*B*	*T*	*p*
1							
LGBTQIA+ members	.009		1.22	1.50	.10	.81	.420
2							
LGBTQIA+ members	.231	.22	.96	1.33	.08	.72	.477
Loneliness			.29	.06	.47	4.49	<.001***

Note: *=p<.05; **=p<.01; ***=p<.001

In summary, no significant difference was found in depression scores between the LGBTQIA+ and the non-LGBTQIA+ groups. The second hypothesis showed the same result; no significant difference was found in loneliness levels between the LGBTQIA+ and non-LGBTQIA+ groups. From hierarchical regression, it was found that LGBTQIA+ membership does not predict depression, but we do see that loneliness significantly predicts depression scores.

Discussion

In the current dissertation, depression and loneliness levels among young adults LGBTQIA+ and non-LGBTQIA+ were examined in Ireland. The current research aimed to examine the differences in depression scores between LGBTQIA+ and non-LGBTQIA+ young adults. As well as the study aimed to investigate the differences in loneliness levels between LGBTQIA+ and non-LGBTQIA+ young adults. Final research question aimed to assess whether there is a relationship between loneliness and depression, as well as test if loneliness predicts depression after controlling for LGBTQIA+ membership. From the aims above, it was hypothesised that there would be a significant difference in depression scores between LGBTQIA+ and heterosexual groups and a significant difference in loneliness levels between the LGBTQIA+ and heterosexual groups. Finally, it was hypothesised that loneliness would correlate with depression and that loneliness would predict depression scores while controlling for the LGBTQIA+ membership variable.

From the first hypothesis examined by an independent t-test, we found no significant difference in depression scores between LGBTQIA+ and non-LGBTQIA+ young adults, therefore rejecting our hypothesis. The results surprisingly were inconsistent with the previous literature that found the difference in depression scores being higher in the LGBTQIA+ group (Peltzer &Pengpid et al., 2016; Ross et al., 2018; Westefeld et al., 2001). Similarly, the second hypothesis examined by the independent t-test results showed no significant differences in loneliness levels between LGBTQIA+ and non-LGBTQIA+ young adults. Again, leading to us rejecting our hypothesis. Again, our results showed inconsistency with past research (Eres et al., 2021;Westfeld et al.,2001; etc.), where a difference in loneliness levels was found to be higher in the LGBTQIA+ group than in heterosexuals. One possible explanation for the non-significant findings of hypotheses one and two is the origin/ country where the sample was collected, as most studies that found differences were from the

USA and Australia. Therefore, there is a possibility that Irish society is more positive or acceptive of LGBTQIA+ members, as Ireland was the first country from Europe to support and allow gay marriage. According to the Irish Times, in May 2015, the same-sex marriage referendum passed with 62% voting yes and 38% voting no, especially gaining the utmost support from young people (Ó Caollaí & Hilliard, 2015). Giving insight that young people of Ireland could be providing the support for LGBTQIA+ members needed to feel safe and accepted. However, with ten years gap, the support could have improved even more; however, this remains speculative and requires further research.

Another possible explanation for not seeing a difference in mean loneliness or depression levels between the groups is the increased levels of loneliness and depression due to covid-19 pandemic. An increase in loneliness levels was noted during the pandemic, as well as an increase in depression(Lee et al., 2020). The results of Lee and colleagues (2020) indicate that increased loneliness among young adults could be an essential tool in increased depression symptoms. Therefore, the groups studied could still be fighting the loneliness and depression symptoms from a pandemic or other environmental factors affecting our results; however, this remains speculative until more research is conducted. Therefore, more research is needed regarding the mental health of young LGBTQIA+ and heterosexual adults in Ireland to understand if the differences in loneliness and depression between the groups are non-significant or could not be captured in the current study due to some other factors.

From the third hypothesis, it was discovered that a moderate positive relationship between loneliness and depression exists to add loneliness significantly predicted depression by 22% variance after controlling for LGBTQIA+ membership. However, LGBTQIA+ membership did not predict depression. The LGBTQIA+ membership having no effect might be due to the small sample size or not identifying the difference in mean loneliness between the groups. Nevertheless, our findings of loneliness being a predictor of depression (or having

a close relationship) is consistent with previous literature (Cacioppo et al., 2006; Erzen & Çikrikci, 2018; Ge et al., 2017; Heinrich & Gullone, 2006; Lasgaard et al., 2010). A meta-analysis aiming to understand to what degree loneliness affects depression, their findings claimed that loneliness had a significant effect on depression which was of medium level (Erzen & Çikrikci, 2018). In addition, they provided an understanding that one possible explanation for the effect of loneliness on depression in young people could be the "sense of belonging" (Erzen &Cikrikci,2018). Lasgaard and colleagues (2010), while studying 15-26 in a Danish sample on a cross-sectional basis, indicated that even after controlling for gender and other demographic factors, various psychosocial variables, and social desirability, loneliness still stayed a correlate of depressive symptoms. However, on the longitudinal level, they did not find a link between loneliness and depression. Therefore, even if the research above, to some, extend favours our results, we can not say that they are the same as our findings. Therefore, more research is needed on loneliness in emerging adults, as not enough research exists, and there is a need to understand how loneliness can affect depression in the long term. Identifying risk and protective factors of loneliness could also help reduce the inclining loneliness levels among younger adults.

Limitation and Strengths

Every study has its strong sides and limitations; therefore, we will identify the current study's strengths and limitations. This research study has a couple of limitations. The first limitation of the study is our small sample size. Within the short time available, we were only able to recruit 73 participants, which did not meet the requirements of 86 participants needed to detect the expected effect size of 0.8 or smaller. Therefore, the current study results for hypotheses one and two might not be completely accurate representations as LGBTQIA+ and non-LGBTQIA+ groups may differ in depression and loneliness scores in Ireland. However, those differences are $d = 0.8$ or smaller, so we weren't able to detect them. Therefore, future

research should try to look at depression and loneliness differences between the two groups in a more significant sample to identify if the differences do exist in the Irelands population. To ensure more excellent reliability and ensure better generalisability of the study.

A second possible limitation of the study is the grouping of LGBTQIA+ together as a whole and not looking at each or specific sexual identity separately. Therefore, future research could implement more within-group differences in the LGBTQIA+ community regarding mental health or even look at each member separately. To provide a more accurate representation of each LGBTQIA+ member, providing more fantastic quality results.

A third possible limitation of the study is the use of self-reported measures for depression and loneliness, as self-reported questionnaires can lead to biases. More specifically, a social desirability bias refers to participants' tendency to select responses that they consider more socially acceptable instead of just responding with reactions that reflect their own genuine opinions or emotions (Holden & Passey, 2009; Latkin et al., 2017). Therefore, people might have felt embarrassed, even if anonymous, to provide their truthful answers and gave exaggerated or undervalued answers instead, at last impacting the results. None less, the measures used in the current study did provide very good reliability and validity scores, with Cronbach alpha being 0.87 (PHQ-9) and 0.91 (UCLA Loneliness Scale) becoming the very strength of the study.

Using only a quantitative approach does not provide an in-depth understanding of results or causation. Therefore, a quantitative measure and additionally added questions (open-ended) could have provided an opportunity for participants to better explain their opinion or life experiences with specific topics such as social belonging or stigma. As a result, they might give a better explanation of the findings. Therefore, future research could try to do a mixed approach to gain a better understanding of mental health in LGBTQIA+ members, as well as heterosexuals.

Implications

The current research contributes to a more extensive collection of studies examining mental health in LGBTQIA+ emerging adults in Ireland in early 2020. This study examined the depression and loneliness levels in LGBTQIA+ and non-LGBTQIA+ emerging adults. Furthermore, the results showed no differences between the groups; however, analysis of the results identified that moderate levels of depression and loneliness exist in both groups. Moreover, we did find a moderate relationship between loneliness and depression, as well as that loneliness, was a predictor of depression. Therefore, if loneliness or depression is identified in larger, statistically powered and replicated studies in the LGBTQIA+ group. Then in the future, the large body of research might contribute to a greater understanding of the factors that may influence the mental health of LGBTQIA+ community members, such as loneliness being one of them.

Clinicians and policymakers could draw on this larger body of research to develop new strategies and policies to improve mental health in the LGBTQIA+ community. For example, healthcare providers could be more inclusive of LGBTQIA+ members by trying to learn about the issues and health problems that the LGBTQIA+ community undergoes and creating brochures to reflect that to make them feel understood. As well as to undergo training on how to be inclusive and respectful of everyone, including LGBTQIA+, e.g., using correct pronouns and preferred names, adjusting or making inclusive forms, avoiding asking unnecessary questions, and focusing on being respectful and not afraid to apologise if needed. It is always essential that healthcare professionals are trained right to serve everyone equally and with the utmost respect and avoid personal biases or prejudice. The changes can help LGBTQIA+ people feel welcomed and less afraid to seek medical treatment. In addition, having a great support system, either from professionals or even friends, can reduce feelings

of loneliness and increase the chances of getting better. Therefore, clinicians could work with parents or friends to teach them how to understand and help those struggling with depression or loneliness.

Policymakers could be stricter on discriminatory laws regarding race and religion, including sexual orientation discrimination and prejudice. For example, LGBTQIA+ members tend to get more discrimination from workers or healthcare staff due to their sexual orientation. In addition, the change can start at schools from secondary to the third level to have strict anti-bullying and non-discrimination policies.

Conclusion

In summary, this study examined if loneliness levels and depression symptoms differ between LGBTQIA+ and non-LGBTQIA+ young adults in Ireland. Even if the results did not find any difference in depression or loneliness levels between LGBTQIA+ and heterosexual adults, it is still unmistakable that LGBTQIA+ emerging adults had experienced some form of loneliness and depression. This study also helped to understand that loneliness might be one of the risk factors for depression in young adults. Finally, this study suggests that future research should look further into the mental health problems of LGBTQIA+ community members to understand their struggles.

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Appendices

Appendix A

Information Sheet

LGBTQIA+ is an abbreviation for lesbian, gay, bisexual, transgender, queer or questioning, intersex, asexual, and more. It reflects persons sexual intimacy preferences towards different sex individuals as well as including different gender identity forms.

You've been asked to take part in a study project. Please carefully read this document before deciding whether or not to participate, as it explains why the research is being conducted and what your participation in this study will entail. If you have any queries about the information given, please contact me at the address listed at the bottom of this sheet.

What is this study about?

I am a final-year BA in Psychology student at National College of Ireland. As part of our degree we must carry out an independent research project. For my project, I aim to investigate more about the mental health of young adults, including the members of the LGBTQIA+ community in Ireland. This project will be supervised by Dr. David Mothersill.

What will taking part in the study involve?

If you decide to take part in this research, you will be asked to complete three online questionnaires. Firstly, you will be presented with a demographic questionnaire where you will be asked to indicate your age, gender, sexual orientation and college years. You will then be asked to fill in two questionnaire scales. First will be the PHQ9, followed by the UCLA Loneliness scale. Once all the questionnaires are filled. The participant will be debriefed using a debriefing form.

Who can take part?

If you are at least 18 years old. If you are in the age range of 18-26 years, and are not currently participating in any studies, you are eligible to take part in this study.

You cannot take part in this study if you are not a student and if you are not over the age of 18.

Do I have to take part?

Participation in this study is completely voluntary and you have the right to refuse to participate. No consequences will take place for refusing to take part in this academic research study. If you decide to take part in the study, you may decide to withdraw from the research study at any time before submitting the form, without any explanation needed. You have the right to not submit the form if you have changed your mind during completion of the study. Participants are asked to answer every question of the questionnaire and if doing so causes the participant to be uncomfortable or triggered, they are asked to withdraw from the study. Once you have submitted your form, it will not be possible to withdraw from the study. Due to the fact that the survey is anonymous and responses cannot be identified.

What are the possible risks and benefits of taking part?

There is a small risk that some of the questions in this survey may cause minor distress for some participants. If that does occur you have the right to discontinue participation and exit the questionnaire.

There are no benefits in taking part in this research. There is no paid rewards. However, the information selected will contribute to research that will help to understand more about the mental health in young adults living in Ireland.

Will taking part be confidential and what will happen to my data?

The questionnaire is anonymous, it is not possible to identify a participant based on their responses to the questionnaire. All data collected for the study will be treated in the strictest confidence. Only the researcher and the supervisor will have the access to the data collected.

Responses to the survey will be stored securely in an encrypted file on the researchers laptop. Researchers anonymised data may be archived on an online data repository and maybe used for secondary data analysis.

The secondary analysis would take place in the National College of Ireland data collection archives. However, no participants data will be identifiable at any point.

What will happen to the results of the study?

The results of this study will be presented in my final dissertation, which will be submitted to National College of Ireland.

Who should you contact for further information?

For further information, you can contact myself, Odeta Uzkuraityte, my email address is as follows x19349381@student.ncirl.ie. You can also contact my supervisor Dr David Mothersill at email - david.mothersill@ncirl.ie if you have any questions.

Appendix B

Consent Form

In agreeing to participate in this research I understand the following:

- Research is being conducted by Odeta Uzkuraityte, an undergraduate Psychology student at the School of Business, National College of Ireland. With the aim of the study is to examine mental health in young adults in Ireland.
- The method proposed for this research project has been approved in principle by the Departmental Ethics Committee, which means that the Committee does not have concerns about the procedure itself as detailed by the student.
- It is, however, the above-named student's responsibility to adhere to ethical guidelines in their dealings with participants and the collection and handling of data.
- I confirm that I have read and understood the Information Sheet for the above research study and are willing to participate voluntarily.
- I am over 18 years old and under 27 years old
- I understand that due to questionnaires there might be some distressing questions asked.
- I understand if I have any doubts about this study, that I may refuse to participate or withdraw at any stage by exiting my browser.
- I understand that I may refuse to participate or withdraw at any stage, until the point of data submission, from which point my data becomes de-identifiable and impossible to withdraw/delete.
- I understand that all study data will be kept strictly confidential. The data from all participants will be accumulated, analysed, and submitted in a report to the School of Business's Psychology Department.
- I understand that my data will be retained and managed in accordance with the NCI data retention policy, and that my anonymised data may be archived on an online data repository and may be used for secondary data analysis. No participants data will be identifiable at any point.
- I took note that at the conclusion of my participation, any questions or concerns I have will be fully addressed by the researcher themselves.

By clicking the "I consent" button below, you are consenting that you have read and understand the above information and that you would like to participate.

□ I consent .

Appendix C

Debriefing Form

I would like to thank you so much for taking part in this research study. The study aimed to investigate the mental health of young adults as well as including the LGBTQIA+ community students.

Participants have the right to withdraw at any time up to the submission of the survey. I would like to mention once again that all data generated is fully anonymous and will be treated with highest levels of confidentiality and discrepancy. The data will be stored securely for 5 years and will be deleted afterwards.

Should you have any further questions or concerns due not hesitate to contact me at x19349381@student.ncirl.ie or my project supervisor at - david.mothersill@ncirl.ie.

If any triggers were caused or discomfort please do not hesitate to reach out to support services such as:

Samaritans – 116-123 = Samaritans offer free phone support from trained volunteers to reduce feelings of isolation, disconnection, and distress

Or

Aware - Freephone 1800 80 48 48 – provides a variety of services, including group meetings that offer support and information, a phone and email support service, and a handful of projects based on cognitive behavioural therapy principles (CBT).

Thank you so much for your time devoted.

Appendix D

PHQ9 Quick Depression Assessment

Over the last *2 weeks*, how often have you been bothered by any of the following problems?
(use "✓" to indicate your answer)

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite — being so figety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself	0	1	2	3
	add columns	+	+	
(Healthcare professional: For interpretation of TOTAL, please refer to accompanying scoring card).	TOTAL:			

10. If you checked off *any problems*, how *difficult* have these problems made it for you to do your work, take care of things at home, or get along with other people?

- Not difficult at all _____
- Somewhat difficult _____
- Very difficult _____
- Extremely difficult _____

Appendix E

Revised UCLA Loneliness Scale

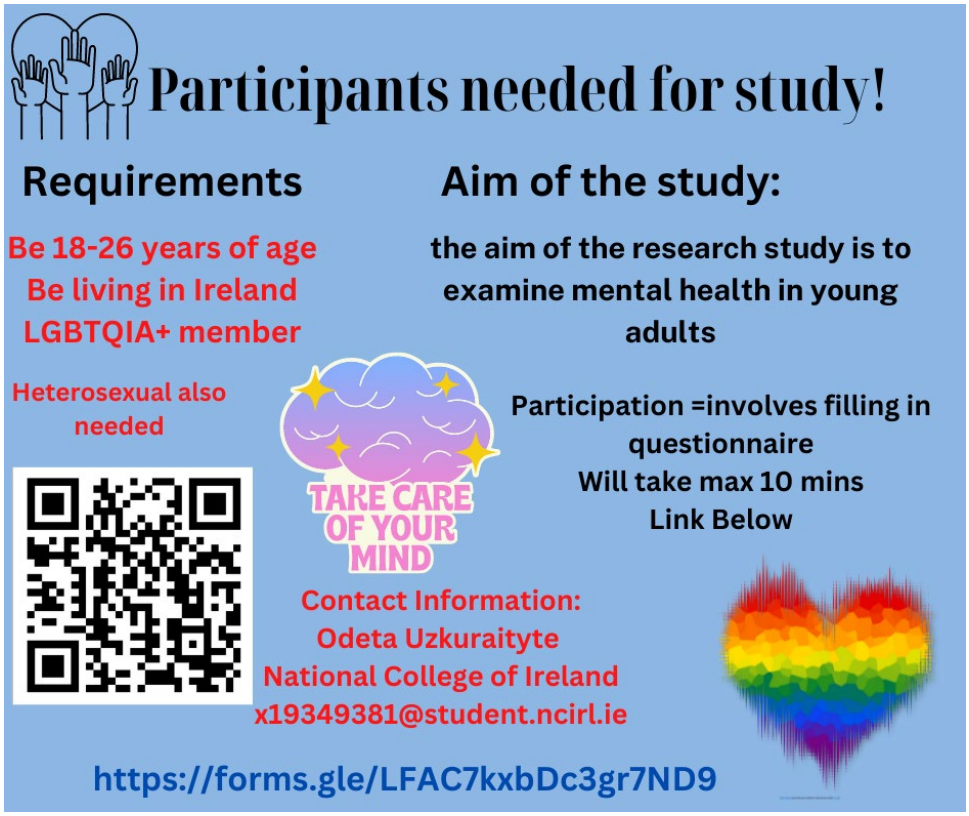
Indicate how often each of the statements below is descriptive of you.

Respond in the following ; 1 = never; 2 = rarely; 3 = sometimes; 4 = always

1. How often do you feel that you are “in tune” with the people around you?
2. How often do you feel that you lack companionship?
3. How often do you feel that there is no one you can turn to?
4. How often do you feel alone?
5. How often do you feel part of a group of friends?
6. How often do you feel that you have a lot in common with the people around you?
7. How often do you feel that you are no longer close to anyone?
8. How often do you feel that your interests and ideas are not shared by those around you?
9. How often do you feel outgoing and friendly?
10. How often do you feel close to people?
11. How often do you feel left out?
12. How often do you feel that your relationships with others are not meaningful?
13. How often do you feel that no one really knows you well?
14. How often do you feel isolated from others?
15. How often do you feel that you can find companionship when you want it?
16. How often do you feel that there are people who really understand you?
17. How often do you feel shy?
18. How often do you feel that people are around you but not with you?
19. How often do you feel that there are people you can talk to?
20. How often do you feel that there are people you can turn to?

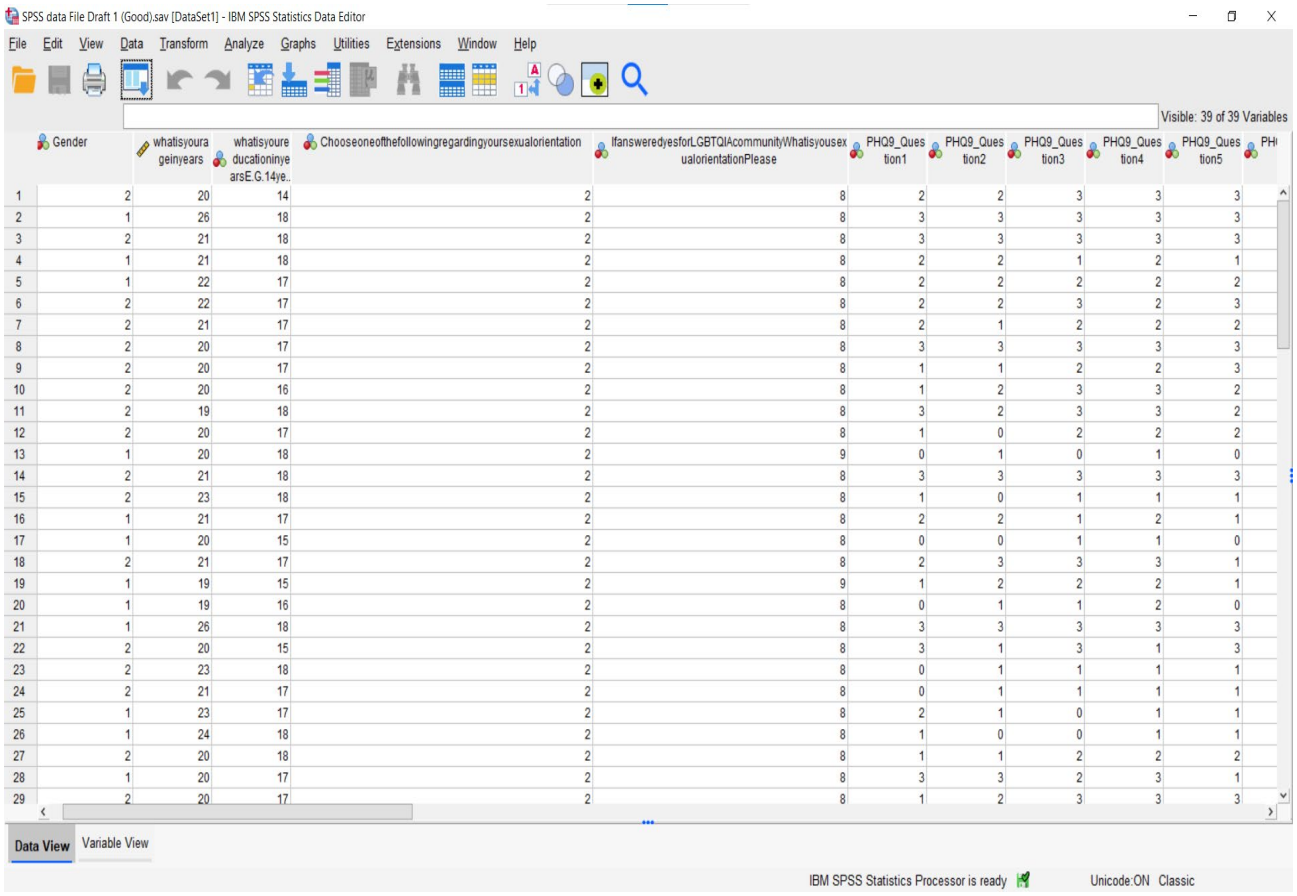
Appendix F

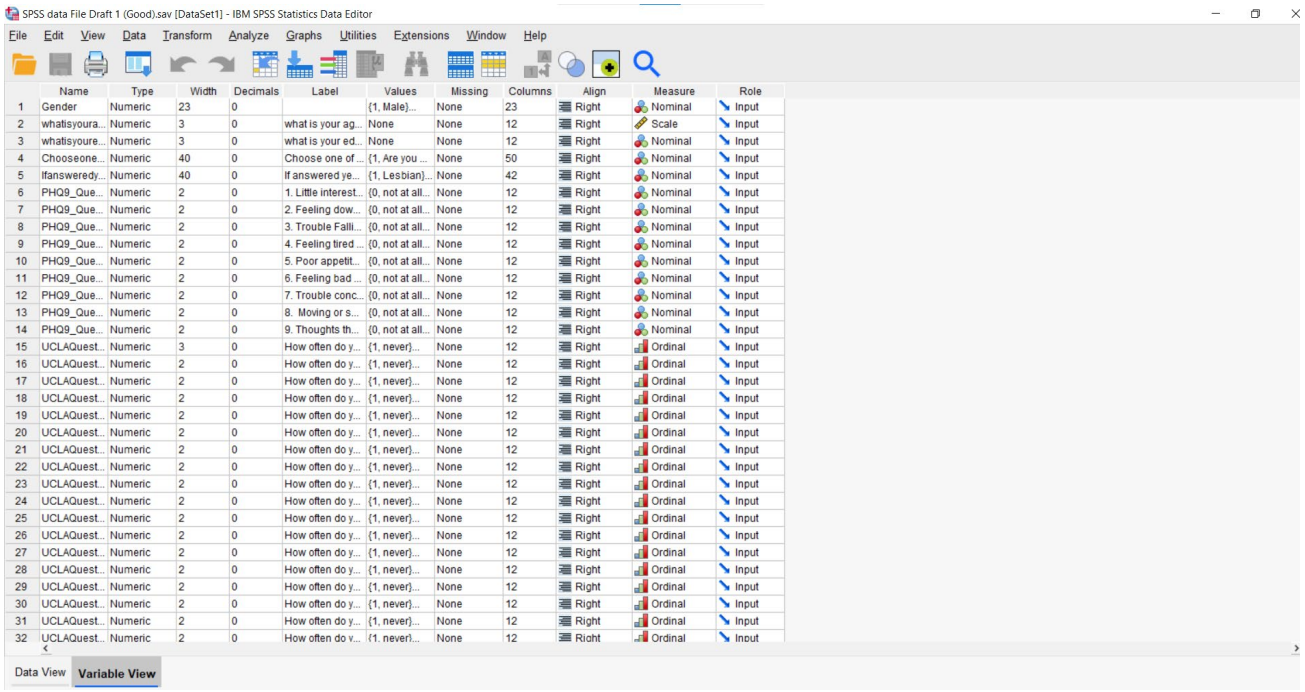
Poster/ Leaflet used for Recruitment



Appendix G

SPSS Data File





Appendix H

Example of an Analysis; Output of Independent t-test and regression