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Predictive Roles of Cognitive and Behavioural Emotion Regulation Strategies on Loneliness among Undergraduate Students at Redeemer's University, Nigeria

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Abstract

Loneliness is a public health concern as it tends to be a risk factor for mental disorders. This study investigated cognitive and behavioural emotion regulation's predictive impact on loneliness among undergraduate students at Redeemer's University Ede, Osun State. A Cross-sectional research design was employed for the study. A convenient sampling technique was adopted in selecting a total of 321 participants (224 females) and (97 males) (Mean age=18.30, SD=1.78). The sample responded to self-report measures of Cognitive Emotion Regulation Questionnaire (CERQ), Behavioural Emotion Regulation Questionnaire (BERQ) and 3-item Loneliness Scale. Three hypotheses were generated and tested using Multiple and Linear Regression analyses. Results showed that participants who felt lonely were characterized cognitively by greater use of rumination (β= .22, $p < .01$) and self-blame (β= .22, $p < .01$), and lesser use of other cognitive strategies. Behaviourally, loneliness was characterized by greater use of actively ignoring stressful situations (β= .16, $p < .01$). Gender and age did not predict loneliness. Still, gender has a significant relationship with withdrawal [$r(319) = .12$, $p < .05$] while age has with acceptance [$r(319) = -.11$, $p < .05$] and ignoring [$r(319) = -.22$, $p < .01$]. Based on the findings of this study, it is seen that individual differences in emotion regulation may play an important role in explaining loneliness and could therefore represent a promising treatment plan.

Keywords: Cognitive emotion regulation, behavioural emotion regulation, loneliness, emotion regulation strategy, undergraduate students.

Introduction

Loneliness is an international public health concern, accelerated by the onset of the COVID-19 pandemic (Cacioppo & Cacioppo, 2018; Lasgaard et al., 2022). Humans are social beings, which makes them incredibly reliant on social connections, facilitating an increase in lifespan and pleasure (Rico-Uribe et al., 2018). Relatedly, an individual would experience loneliness when the quality of social connections or relationships with significant others is lesser than expected or ideal (Lasgaard et al., 2022). Loneliness is defined as the negative, emotional experience that occurs due to a perceived absence of desired social relationships (Maes et al., 2019; Perlman & Peplau, 1981), either in terms of quantity or quality (Qualter et al., 2015). The subjective experience of loneliness differs from the objective experience of being alone or the quantitative lack of close relationships, also known as objective isolation (Goodfellow et al., 2022). People can live relatively isolated lives and not feel lonely, or they can live in a large family and still feel lonely (Benjamin & Gummanur, 2023). Loneliness is an adaptive aspect of human life as it is associated with negative feelings (Qualter et al., 2015). When

loneliness is prolonged, it leads to a variety of either short- and long-term adverse health effects (Holt Lunstad et al., 2022); contributing to poor mental health like depression (Jefferson et al., 2023), poor sleep across the life (Matthews et al., 2017), individuals who are often feeling lonely have lower expectations and aspirations from life compared to others and also experience poor quality of life (Kanbay et al., 2023), with a strong relationship with suicidal behaviours (Saeed et al., 2023).

Loneliness is also particularly felt among emerging adults as this is a major transitional period from secondary school to higher education. University students experience loneliness due to their newfound independence and individualization of their new life (Hawkley et al., 2020), where they start making decisions autonomously. Going to school often follows the need to adapt to a new environment, and initiate new relationships outside the walls of their homes. Although, this gives room for several opportunities, relocating to a new environment could be risky, leading to loneliness (a new city, a new residential apartment), which may lead to perceived social isolation and exclusion (Akturk et al., 2018). Some students might fit right in while others might take longer or never to fit in. Different research has shown that loneliness affects people of all ages in various ways but irrespective of whether the age differences in loneliness follow a U-shaped curve (Hawkley et al., 2020; Lasgaard et al., 2016; Luhmann & Hawkley, 2016; Victor & Yang, 2012) or a downward slope across age (Barreto et al., 2021; ONS, 2018), research consistently shows that loneliness is most prevalent during late adolescence and early adulthood (16–24 years of age) (Jefferson et al., 2023). This research suggests that an emotion and behavioural regulation framework can help understand loneliness as well as generate more specialized and successful therapies for loneliness because loneliness is a negative emotional state. Gross (2015) process model of emotion regulation describes different categories of emotion regulation strategies based on how early they are activated in the emotion generation process (it was broadly classified into situation selection, situation modification, attentional deployment, cognitive change, and response modulation). It is opined that different strategies from these groups will have different impacts. In other words, various techniques will have varying degrees of success in either up- or down-regulating negative and positive emotions related to feeling lonely (Gross, 2015; Preece et al., 2021). The variances of emotion regulation tactics adopted by an individual might have considerable effects on well-being, social-relational functioning, as well as the treatment of psychopathology (Preece et al., 2021). This emotion regulation paradigm has been widely and successfully employed in broader mental health studies (Goldenberg et al., 2016; Preece et al., 2020; Sheppes et al., 2015). Few studies have used habitual emotion regulation strategies to understand loneliness. Several studies focused on a few regulation strategies, namely cognitive reappraisal (changing the way one thinks about a potentially emotion-eliciting event), and expressive suppression (changing the way one responds behaviourally to an emotion-eliciting event) (O'Day et al., 2019; Preece et al., 2021). Research has shown that cognitive reappraisal is an adaptive factor in promoting being less lonely among young people (Preece et al., 2021), while expressive suppression is related to higher experience of loneliness. Little studies have individually examined cognitive or behavioural strategies in isolation, especially in African youth populations. Cognitive emotion regulation is the deliberate, perceptive approach to processing the intake of emotionally upsetting information (Domaradzka & Fajkowska, 2018; Garnefski & Kraaij, 2007). Cognitive emotion regulation describes the reasoning of an individual right after the experience of an unpleasant event (Garnefski et al., 2002), which is different from related constructs, such as coping, which refers to processes that highlight reducing stress reactions. It happens over more extended periods (Gross, 2015). Evidence from past studies has demonstrated that the ability of cognitions or thoughts to regulate emotions is intrinsic to human existence and aids individuals in maintaining emotional self-control either during or following the experience of a stressful or dangerous event (Garnefski et al., 2002; Preece et al., 2021). For instance, when individuals encounter negative life events, their cognitive

responses vary. Some may engage in self-blame, while others may blame external factors or other individuals.

Moreover, people might ruminate, repeatedly dwell on their feelings and thoughts about the event, or adopt strategies such as acceptance and positive reappraisal to cope with the situation. It's important to note that while the capacity for advanced cognitive processes and emotion regulation is a common human attribute, there are significant individual differences in the extent of cognitive activity and the specific content of these thoughts used by individuals to manage their emotions in reaction to life experiences, events, and stressors (Cacioppo & Hawkley, 2009; Garnefski & Kraaij, 2007). There is a little dichotomy between cognitive coping and conscious, cognitive emotion regulation. One significant distinction between these perspectives is cognitive and behavioural approaches are used in both problem-focused and emotion-focused dimensions of coping. In contrast, cognitive emotion regulation theory considers cognitive strategies to be conceptually pure, distinct from behavioural strategy, because they are predicated on the idea that thinking and acting refer to different processes (Kraaij & Garnefski, 2019). Garnefski et al. (2001) developed the cognitive emotion regulation questionnaire (CERQ), differentiating between nine cognitive emotion regulation approaches in both theory and experiential bases, and identifying individuals' mindsets regarding their encounters with stressful life situations. According to research, rumination, blame attribution, and catastrophizing are less adaptive (negative) strategies (Preece et al., 2021). They have been correlated with depression, anxiety, and distress. At the same time, positive reappraisal, refocus on planning, acceptance, putting into perspective, and positive refocusing are adaptive (positive) strategies that is correlated with psychological well-being (Kraaij & Garnefski, 2019). Behavioural emotion regulation refers to how individuals modify their behaviours and actions in response to emotional experiences to regulate their emotions. This can involve a wide range of strategies and techniques that people employ to manage and control their emotional reactions to situations, especially those that are emotionally challenging or stressful (Kraaij & Garnefski, 2019). Kraaij and Garnefski (2019) developed the behavioural emotion regulation questionnaire (BERQ), which includes five conceptually distinct scales, each referring to what you do following the experience of stressful events. The scale involves seeking distraction, which refers to diverting your attention from the unpleasant sensations by focusing on another thing to handle the unpleasant situation, it entails pulling yourself off from events and situations to address the stressful event. Actively approaching refers to active behaviour in dealing with the stressful event, seeking social support refers to actively sharing emotions and asking for support and advice to cope with the stressful event, ignoring refers to ignoring and behaving as though nothing has happened to deal with the stressful event (Kraaij & Garnefski, 2019). According to research, withdrawal and ignoring are less adaptive (negative) strategies, and they have been correlated with depression and or anxiety symptoms while seeking distraction, actively approaching, and seeking social support are adaptive (positive) strategies that are associated with psychological well-being (Kraaij & Garnefski, 2019; Preece et al., 2021). People frequently employ various behavioural and cognitive techniques to control their emotions, such as multiple cognitive methods or behavioural tactics intended to change the course of an emotional reaction that is developing (Aldao et al., 2010; Tan et al. 2022). This study investigates the relationship between the regular use of emotion regulation strategies and loneliness. It expands on previous research by exploring a wider range of emotion regulation techniques to comprehend better how they relate to and predict loneliness amongst university undergraduates in Redeemer's University Ede, Osun State.

Hypotheses

1. Cognitive emotion regulation will significantly predict loneliness amongst undergraduate students at Redeemers University Ede, Osun State.
2. Behavioural emotion regulation will significantly predict loneliness amongst undergraduate students at Redeemers University Ede, Osun State.

3. Age will significantly predict loneliness among undergraduate students at Redeemers University Ede, Osun State.
4. Gender will significantly predict loneliness among undergraduate students at Redeemers University Ede, Osun State.

Methods

Research Design

The study utilised a cross-sectional survey design. This study sought to understand the predictive roles of cognitive-emotional regulation on loneliness among university undergraduates in Redeemer's University, Nigeria. A questionnaire was used to gather information and since the study is descriptive, there was no experimental manipulation of the variables.

Study Participants/ Sampling Techniques

This target population consisted of male and female university undergraduates at Redeemer's University, Osun State. With a total of 5,322 undergraduates across its eight faculties: basic medical sciences, engineering, built environmental studies, humanities, Law, management sciences, natural sciences, and social sciences, the Taro Yamane's (1967) formula for finite population was utilised in drawing participants for the study. The formula is represented as; $n= N/ (1+N (e)^2)$, Where: n- sample size, N- the population under study. and the sampling error is set at 0.05 for this study. The sample size calculated was approximately 371. However, the researchers used 400 participants to enhance the strength of generalizing the outcome. Thereafter, convenience sampling was used to select willing participants.

Research Instruments

The UCLA 3-Item Loneliness Scale created by Hughes et al (2004) **i**s the compressed version of the UCLA Loneliness Scale developed in 1970. The UCLA 3-item loneliness scale was developed in 2004. The items include "How often do you feel that you lack companionship?", "How often do you feel left out?", and "How often do you feel isolated?". Items are rated on a 3-point Likert scale, with higher scores indicating a higher degree of loneliness. The UCLA 3-item loneliness scale is unidimensional. For this study, the scale has a satisfactory internal consistency score of Cronbach's α=0.78.

Cognitive Emotion Régulation Questionnaire (CERQ) was created by Garnefski & Kraaij (2007). The questionnaire has 36 items identifying nine distinct cognitive-based emotion regulation tactics people use when facing unpleasant life conditions. Items are ranked with a 5-point Likert scale, with higher scores indicating more use of that strategy. Each subscale has four items with scores ranging from (range 4 to 20). In the present study, the alpha-reliabilities of the subscales also appeared to be good, with alphas ranging from 0.71 to 0.77.

*Behavioural Emotion Regulation Questionnaire (BERQ***)** is a 20-item instrument created by Garnefski and Kraaij (2018). BERQ consists of 5 sub-scales which examine individuals' behavioural coping tactics in controlling their emotions. The instrument sub-scales are seeking distraction, withdrawal, actively approaching, seeking social support, and ignoring. The items are measured on a 5-point Likert scale ranging from 1 ([almost] never) to 5 ([almost] always). For each subscale score the four items are added (range 4 to 20). In the present study, the alpha-reliabilities of the subscales also appeared to be fair, with alphas ranging from 0.40 to 0.61.

Ethical Consideration

Since this research involves human participants, the research procedures for human participants were observed in line with the 1975 Helsinki Declaration. The research processes (objectives, informed consent, voluntariness and freedom to withdraw from the study at any time) were vetted by the Internal Research Ethics Committee of Redeemer's University, Ede, Osun State. Participants were also duly informed about the objectives of the research while no coercion was used. The anonymity of the participants was ensured.

Data Analysis

Data from the study was analysed using IBM-Statistical Package for Social Sciences version 23. The frequency table, percentage, mean and standard deviation were utilised for the descriptive data while the multivariate and linear regression were utilised to analyse the hypotheses of the study.

Results

Participants' sociodemographic distributions are as follows; for gender, 30.2% were male participants and 69.8% were female. In the aspects of the level, 100 level was 63.6%, 200 level was 11.8%, 300 level was 9.7%, 400 level was 6.5%, and 500 level was 8.4%. The result also revealed that 44.5% were from the faculty of basic medical science, 13.7% were from the faculty of natural science, 12.1% were from the faculty of law, 10.9% were from the faculty of social science, 9.3% were from the faulty of management science, 5.6% were from the faculty of humanities, 2.5% were from the faculty of engineering, and 1.2% were from the faulty of built environmental studies. The participants' age ranged between 15 years and 25 years (M = 18.30, SD = 1.78).

Hypothesis one: The hypothesis that cognitive emotion regulation will significantly predict loneliness amongst university undergraduates in Redeemers University Ede, Osun State was tested utilizing multiple regression analysis. The result is reported in Table 1.

Table 1

Multiple Linear Regression showing Prediction of Cognitive Emotion Regulation on Loneliness Amongst Undergraduate Students in Redeemer's University Ede, Osun State.

Predictors	β	t	P	R	R^2	df	F
				.46	.21	320	9.03
Self-Blame (CER 1)	.22	3.48	< .01				
Acceptance (CER 2)	.06	.93					
Rumination (CER 3)	.22	3.25					
Positive Refocusing (CER 4)	-.05	-.84					
Refocus on Planning (CER 5)	-.12	-1.78					
Positive Reappraisal (CER 6)	-.02	-.23					
Putting into Perspective (CER 7)	-.07	-1.22					
Catastrophizing (CER 8)	.07	1.14					
Blaming Others (CER 9)	.12	1.20					

Table 1 indicated that the use of self-blame and rumination cognitive emotion regulation strategy significantly predicted loneliness (β= .22, $p < .01$); (β= .22, $p < .01$) respectively. This implies that individuals who blame themselves or spend time ruminating about the stressful situations or events they are experiencing tend to feel lonely compared to others who don't. The use of other cognitive emotion regulation strategies did not predict loneliness. This partially confirms hypothesis one.

Hypothesis two: The multiple regression analysis also examined the hypothesis that behavioural emotion regulation will significantly predict loneliness among university undergraduates in Redeemers University Ede, Osun State. The result is presented in Table 2.

Table 2

Multiple Linear Regression showing Prediction of Behavioural Emotion Regulation on Loneliness Amongst Undergraduate Students in Redeemer's University Ede, Osun State.

Predictors	β	t	P	R	R^2	df	F
				.21	.04	320	2.76*
Seeking Distraction (BER 1)	-.01	-.15	< .01				
Withdrawal (BER 2)	.08	1.30					
Actively Approaching (BER 3)	-.07	-1.04					
Seeking Social Support (BER 4)	.08	1.45					
Ignoring (BER 5)	.16	2.79					

The result in Table 3 indicated that the use of ignoring behavioural emotion regulation strategy significantly predicted loneliness (β= .16, p < .01). This implies that individuals who ignores what they are experiencing tend to feel lonely compared to others who don't. The use of other behavioural emotion regulation strategies did not predict loneliness. This partially confirms hypothesis two.

Hypotheses 3 & 4: The hypothesis that socio-demographic variables (Gender & age) will significantly predict loneliness amongst university undergraduates in Redeemers University Ede, Osun State was examined using linear regression analysis. The result presented in Table 3.

Table 3

Linear Regression showing Prediction of Gender and Age on Loneliness Amongst Undergraduate Students in Redeemer's University Ede, Osun State.

Predictors	β	T	P	R	R^2	df	F
				.09	.01	320	1.76
Gender	.09	1.67	> .05				
Age	.00	.06					

Table 4 showed that Gender did not significantly predict loneliness amongst undergraduate students in Redeemer's University (β= .09, p > .05). This implies that Gender does not have any influence on loneliness (β= .00, p > .05). Table 3 also reveals that age did not predict loneliness. This negates hypothesis three and it was rejected.

Discussion

This study investigated the predictive role of cognitive and behavioural emotion regulation strategies on loneliness amongst undergraduate students in Redeemer's University Ede, Osun state. The study also determined how certain socio-demographic factors of the students (age

and Gender) predicted their feelings of loneliness. A total of three hypotheses were tested during this study. As revealed in this study, the prevalence of loneliness was that 50.2% of the participants reported not feeling lonely, while 49.8% felt lonely. It indicates that almost half of the population is feeling lonely. The formulated hypothesis one, which stated that cognitive emotion regulation will significantly predict loneliness amongst undergraduate students in Redeemer's University Ede, Osun State, was partially confirmed. This was because of the nine cognitive emotion regulation strategies that could be used when dealing with stressful events or situations; self-blame and rumination significantly predicted loneliness. People who overthink, obsess over a problem, or hold themselves responsible for unpleasant conditions tend to feel lonelier than those who employ other cognitive emotion regulation strategies. This finding is supported by Preece et al. (2021) research on loneliness and emotion regulation. Their findings revealed that the habitual emotion regulation pattern linked to loneliness was characterized by more rumination, blame attributions (to the self and others), and less cognitive reappraisal strategies or helpful thought reframing. This implies that rumination/focus on thought and blame-attributions aggravate the feeling of loneliness. The result of this study is also consistent with the findings of Tan et al. (2022) in their research on loneliness versus distress: a comparison of emotion regulation profiles. They discovered that loneliness and distress were both similarly characterized by the low use of cognitive reappraisal and the high use of catastrophizing, rumination, and self-blame. Although catastrophizing was not significant in this study, it could be due to the cultural differences. The formulated hypothesis two, which stated that cognitive emotion regulation will significantly predict loneliness amongst undergraduate students in Redeemer's University Ede, Osun State, was partially confirmed. This was such that only one of the five behavioural emotion regulation strategies predicted loneliness, this strategy was ignored. This suggests that, in contrast to people who employ other behavioural emotion regulation strategies, people who ignore or block out the distressing experience they are going through feel lonely. This is consistent with the study of Kraaij and Garnefski (2019) in their research on the behavioural emotion regulation questionnaire: development, psychometric properties and relationships with emotional problems and the cognitive emotion regulation questionnaire. It was revealed that the higher use of withdrawal and ignoring was related to more depression and anxiety symptoms, suggesting these are less adaptive strategies. This study's results negate the findings of Preece et al. (2021) and Tan et al. (2022) as they both observed that withdrawal predicted loneliness. Cultural variations may be the reason for the discrepancy between their results and the findings of our investigation. The population culture of this study is collectivist, whereas theirs is individualist. This might significantly impact how people in these societies would act in specific situations—in this case, stressful occurrences. Hypothesis three about the significant prediction of loneliness by socio-demographic variables (Gender & age) was rejected. The socio-demographic factors (age and Gender) did not predict loneliness. The fact that age did not expect loneliness is supported by a meta-analysis on the stability and change of loneliness across the life span carried out by Mund et al. (2019); they discovered that loneliness decreased from childhood and stayed constant throughout adolescence and the longest in old age. So, children tend to feel less lonely as they grow up, and this feeling of loneliness doesn't change much as people become adults. This phenomenon may be attributed to the observation that during emerging and young adulthood, there is a peak in the size of individuals' social networks and the number of friends they have. This peak provides individuals with a substantial pool of acquaintances to select and modify their closest friendships. Simultaneously, individuals must navigate a delicate equilibrium between maintaining an extensive social network and cultivating profound, intense relationships. The interaction between these factors could contribute to the sustained stability in the average level of loneliness during these stages of life (Mund et al., 2019). Since Gender was not a predictor of loneliness, there is no distinction in the prevalence of loneliness between men and women. This result is partially supported by a

meta-analysis on gender differences in loneliness across the lifespan carried out by Maes et al. (2019), their research revealed a marginally significant effect that suggests men are marginally lonelier than women. They found that the difference between how men and women felt lonely at different developmental stages of life was small but significant.

Conclusion

The study's results support the idea that the emotion regulation strategies (cognitive or behavioural) used by an individual are related to loneliness. The findings from this study are consistent with the study of Preece et al. (2021), who researched loneliness and emotion regulation. How young adults manage and control their emotional responses and the processes and strategies they use to understand, modify, and cope with their emotions in a stressful situation significantly impact how they feel and perceive the world. Based on the findings of this study, cognitive rumination and self-blame predicted loneliness. This implies that when individuals engage in excessive and repetitive thinking (rumination) or attribute blame to themselves for negative experiences (self-blame), they are more likely to experience feelings of loneliness. These cognitive processes can make it difficult for individuals to engage in satisfying social interactions and maintain healthy relationships, ultimately leading to increased loneliness in adolescents and young adults. Behavioural, ignoring predicted feelings of loneliness. Feelings of loneliness often arise from a lack of meaningful social interactions and emotional connections with others. When individuals habitually employ ignoring to cope with their emotions, they may inadvertently distance themselves from potential social support and understanding sources, ultimately contributing to feelings of isolation and loneliness. Gender did not predict loneliness but had a relationship with withdrawal. Male adolescents and young adults were more prone to use withdrawal to cope with stressful situations. The findings of this study suggest that emotional regulation is relevant to understanding loneliness.

Recommendations

It is apparent from the findings of this study that cognitive and behavioural emotion regulation strategies predict loneliness. Firstly, since it is seen that emotion regulation can be used in the case of loneliness, emotion regulation-based treatment approaches might, therefore, represent a promising treatment pathway for loneliness. Psychologists and clinicians can leverage these treatment modalities to try to eradicate loneliness from society. Secondly, parents and caregivers should educate their children from a tender age on using positive emotion regulation strategies. As children gradually develop into adults they should be corrected whenever they are seen using negative cognitive and behavioural emotion regulation to cope with stressful events or situations. Thirdly, emotion regulation strategies should be incorporated into the school counselling system. School counsellors should counsel children on how to cope with life stressors. In addition, The Nigeria Psychological Association (NPA) should educate Nigerians on the importance of therapy for adolescents and young adults as they develop into fully functioning adults. It has been seen in several research that the period of transitioning could be a huge factor for them to feel lonely. Therefore, parents, caregivers and even teachers can be equally educated to see how to help these individuals transition more smoothly.

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