

The Moderating Role of Resilience in the Relationship between Life Challenge and Psychological Risk as Explored through the Reality Psychology Framework

Annie Castle

arob0028@student.monash.edu

Monash University

Maryam Afridi

Monash University

Stephen McKenzie

Monash University

Research Article

Keywords: Reality Psychology, Life challenge, Resilience, Psychological Risk, Wellbeing, Mental Health

Posted Date: October 14th, 2026

DOI: <https://doi.org/10.21203/rs.3.rs-11117709/v1>

License:  This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Additional Declarations: No competing interests reported.

Abstract

Background

Our life challenges can place our psychological wellbeing at risk, however psychological resilience may provide a valuable layer of protection. The present study examined the relationships between life challenge, psychological risk, and resilience within the newly proposed Reality Psychology framework. It was hypothesised that life challenge would be positively relate to psychological risk, resilience would be negatively relate to psychological risk, and resilience would moderate the relationship between life challenge and psychological risk, with a weaker relationship for higher resilience.

Methods

Participants were an international sample of 136 adults (55.1% women; 44.9% men) aged between 18 and 79 years ($M = 47.8$ years, $SD = 15.7$), recruited online via social media and CloudResearch. Participants completed a cross-sectional online survey comprised of the Brief Resilience Scale, adapted Childhood Life Challenges Scale, and Psychological Risk Scale, developed specifically for this study.

Results

A moderated multiple regression analysis showed that, as predicted, higher life challenge was associated with higher psychological risk ($p = .009$), and higher resilience was associated with lower psychological risk ($p < .001$). Resilience did not, however, moderate the relationship between life challenge and psychological risk ($p = .77$). Although the moderation was non-significant, meaningful implications may still be drawn from the specific resilience measure used.

Conclusion

The findings suggest that higher resilience is associated with lower psychological risk, and that different subtypes of resilience may play different roles in resilience, risk and life challenge inter-relationships. These findings have implications for future theory development, research, and clinical practice.

1 Introduction

The challenges and hardships we face throughout life can place our psychological health and wellbeing at risk [1]. While life hardships can result in suffering, they can also have positive outcomes that we can harness to enhance our psychological wellbeing and find deeper meaning in our lives. This raises a theoretical question about how we should conceptualise life challenges when they can be associated with both harm and growth. A framework is needed that can account for associated psychological risk without reducing human experience to pathology while also avoiding overly positive interpretations of

hardship. Reality Psychology is a newly proposed psychological framework that takes a middle path approach to accepting life as it is in order to create meaningful change [2]. Reality Psychology proposes that psychological wellbeing is best understood as a complex interaction of risk and protective factors rather than as a simple distinction between illness and wellness. In an initial empirical illustration of the Reality Psychology framework, the current study examines how exposure to life challenges impacts psychological risk and the role that psychological resilience plays in this relationship.

1.1 Reality Psychology: A New Psychology Framework

Originally proposed in *Reality Psychology: A New Perspective on Wellbeing, Mindfulness, Resilience and Connection* [2]. Reality Psychology seeks to provide an independently valuable framework which can help guide the progression of psychological theory and practice. Historic approaches to psychology influenced by the medical model have focused heavily on the diagnosis and treatment of mental illness [3]. Positive Psychology emerged in the 1990s in response to this, shifting the emphasis to promoting individual strengths rather than focusing on the maladaptive [4]. This crucial turning point in psychology reinforced the importance of exploring variations in happiness and wellbeing. Positive Psychology has since become a globally popular and successful psychological framework, with interventions making extensive contributions to the clinical field [5]. However, some of the original philosophies of Positive Psychology have become misinterpreted in the modern world [6]. For example, the belief that people should experience happiness and positivity all the time is frequently promoted via pop psychology and social media [7]. Reality Psychology potentially provides a valuable framework to guide psychological theory and practice, and could provide a balancing counterpart to existing frameworks, based on its suggestion that to achieve our real human potential, we need to fully connect with reality as it is rather than attempting to distort it [2]

1.2 Psychological Risk

Reality Psychology proposes a balanced conceptual framework from which to explore mental health and wellbeing. Taking a systems-based approach, Reality Psychology emphasises the complex inter-relationship between mental health and wellbeing [2]. Rather than viewing mental health as binary, Reality Psychology views of psychological wellness as a continuum upon which all human experience sits, including psychopathology [2].

Psychological risk is defined as an individual's risk of developing mental health and wellbeing damage and disturbance based on a combination of risk factors [2, 8, 9]. Where psychological wellness can be conceptualised as a continuum of human experience, so too can psychological risk be conceptualised as its natural inverse. Reality Psychology proposes examining psychological risk as a continuum, with a focus on improving outcomes for all that lay along it [2]. It is necessary that we understand the risk and protective factors of mental health and wellbeing to be able to provide optimal response and prevention [10]. Exploring psychological risk and its related contributors is the first step toward expanding this understanding through the lens of Reality Psychology.

1.3 Life Challenge and Psychological Risk

Facing hardships in life is an inevitable part of human existence. Experiencing challenges in life can throw us off balance, disrupt our daily life and cause significant pain and suffering [11]. Life challenges are characterised by their diversity and vary in their form, severity and impact. They can range from personal difficulties, such as a job loss or relationship break up, to traumatic experiences such as injury or abuse [12].

Experiencing life challenges can have a negative impact on psychological outcomes [1]. Exposure to life challenges has been linked to an increased risk of mental illness including major depression, anxiety and post-traumatic stress disorder [13, 14, 15]. Life challenge exposure can also negatively impact wellbeing and has been associated with increased stress, lower satisfaction with life and lower subjective wellbeing [16, 17, 18]. Research proposes that there is a bidirectional relationship between life challenge and psychological risk. Difficult and traumatic life events can trigger negative mental health and wellbeing outcomes [8, 19]. Equally, having pre-existing mental health and wellbeing struggles can make individuals more vulnerable to experiencing additional adversities, and make it more challenging to overcome them [20].

However, the relationship between life challenge and psychological risk may not be a straightforward one. Exposure to life challenges can also have positive impacts on mental health and wellbeing [1, 21]. Experiences of hardship are often associated with personal growth, increased confidence and improved self-efficacy [22, 23]. These can act as protective factors to provide a form of “immunisation” against future life challenges [24, 25]. Following difficult or traumatic experiences, people often report a deeper sense of self-connection, self-knowledge and meaning in their lives [22]. While life’s challenges are often out of our control, there may be ways to reduce the psychological risks they pose, while increasing the potential benefits they offer [26, 27]. Given that life challenges have both negative and positive psychological outcomes, a more complex understanding of these inter-relationships is required to interpret how to optimise overall psychological outcomes.

There are theoretical and practical limitations to how life challenge has been measured in previous research. Most studies to date utilise a checklist approach, where participants indicate if they have or have not experienced specific events [28]. But humans are unique and do not respond the same to all experiences [12, 27]. There is an inherently subjective nature to the experience of a life event and its psychological impacts. The checklist approach to measurement is limited to relying on a handful of specific events [28]. Furthermore, life challenge studies have largely focused on distinct psychopathologies and separated the concepts of mental health and wellbeing [15]. The current study looks to expand on previous studies by measuring life challenge subjectively to better capture the diversity of the human experience in line with the philosophies of Reality Psychology.

1.4 Psychological Resilience

One potential positive outcome of facing challenges in life is the opportunity it provides to build psychological resilience [29]. Psychological resilience is a dynamic psychological characteristic defined as an individual's ability to endure and thrive in the face of adversity, adapt to new or difficult situations, and effectively recover from hardships [30, 31]. It is influenced by individual temperament, personality traits, psychological state and can be adaptively strengthened through experience [23]. It is not merely psychological toughness or the absence of emotional response, but rather the ability to adapt flexibly and find acceptance and growth under difficult circumstances [2].

Resilience may function as a protective factor of psychological risk [32]. Higher levels of resilience have been negatively associated with stress, anxiety and depression [33, 34, 35]. Higher resilience has also been found to predict increased wellbeing, subjective happiness and satisfaction with life [34, 36, 37, 38]. There are multiple components of psychological resilience including hardiness, emotional regulation, cognitive resilience, emotional flexibility, social resilience, and the ability to bounce back from hardship [39]. These multiple components combine to form an individual's overall psychological resilience [30]. Mental health interventions designed to increase resilience through psychoeducation and cognitive behavioural strategies have shown success in clinical and educational settings [40, 41]. A defining characteristic of resilience is that it is only in response to adversity that we can truly observe it [42].

1.5 Resilience as a Moderator between Life Challenge and Psychological Risk

Research suggests that having higher resilience can reduce the level to which exposure to life challenge impacts psychological outcomes [23]. Individuals with lower levels of resilience experience more severe negative psychological consequences from difficult and traumatic experiences [43, 44]. Meanwhile, individuals with higher resilience tend to be less negatively impacted by life's challenges [21, 44]. Resilience has been found to moderate the relationship between childhood trauma and mental health outcomes in adulthood [33, 45, 46, 47]. Studies focusing on historic life events reach similar conclusions. During the Covid-19 pandemic, individuals with higher levels of resilience were less negatively affected by the associated stressors and challenges of that period [35, 37, 48]. Higher resilience is proposed to act as a protective factor, weakening the relationship between life challenges and poor mental health and wellbeing outcomes [8].

Contrastingly, a small number of studies have found that there are circumstances when resilience does not influence the psychological outcomes of life challenges. These are typically studies investigating highly traumatic experiences in groups known to be at elevated psychological risk [49, 50, 51]. It may be that when life challenges are severely traumatic, overwhelming and cumulative, it can disrupt the brain's ability to cope and adapt [49]. Further investigation into the moderating role of resilience is required to establish under what circumstances this effect occurs, and how this potential protective factor can best function to improve mental health and wellbeing outcomes.

1.6 The Current Study

The challenges we face in life can cause both harm and benefit to our overall psychological wellbeing. How resiliently we are able to respond to these challenges may shift that balance for the better. Further investigation is required to gain clarity on the complex inter-relationships between life challenge, resilience and psychological risk in order to optimally improve psychological outcomes. Testing Reality Psychology has been proposed as a conceptual framework for understanding wellbeing, resilience and psychological risk, and could valuably inform reality-focused clinical approaches to enhancing mental health and wellbeing [2]. Deepening our understanding of resilience and its potential protective role can help to inform preventative and clinical interventions [40]. It may be that preventative resilience building interventions could be applied to protect the psychological wellbeing of individuals exposed to extreme adversity [3]. The current study expands on previous literature by employing newly conceptualised measures based on Reality Psychology philosophies and studying these relationships in a non-clinical general adult population. This has the added benefit of expanding the applicability of findings, looking beyond treating mental illness and exploring how all people can strive to live meaningful and enriched lives.

Experiencing trauma and adversity is realistically an unavoidable fact of life that can contribute to psychological damage and disturbance [45]. But that does not mean that we are condemned by these experiences. Reality Psychology proposes the paradox that we need to fully accept reality as it is, before we can improve it. For people who have experienced great hardship, it may be that real resilience offers a form of real hope.

The current study aims to explore the relationships between life challenge, resilience and psychological risk, as conceptualised under the new Reality Psychology framework. It further aims to explore whether the relationship between life challenge and psychological risk changes depending on an individual's level of resilience. It was hypothesised that there would be a significant positive linear relationship between exposure to life challenge and psychological risk. It was hypothesised that there would be a significant negative linear relationship between resilience and psychological risk. It was hypothesised that resilience would significantly moderate the relationship between life challenge and psychological risk, such that a weaker relationship would be observed for individuals with higher levels of resilience.

2 Methods

2.1 Participants

Participants were 136 adults (55.1% women; 44.9% men; 0.0% gender diverse; 0.0% prefer not to say) aged between 18 and 79 years ($M = 47.8$ years, $SD = 15.7$). To be eligible for the study participants had to be over 18 years old and fluent in the English language. There were no additional exclusion criteria.

2.1.1 Sampling Procedure

A sample of the general adult population were recruited via online advertisements. The study was advertised on CloudResearch (formerly TurkPrime), an international research platform designed to connect researchers with paid participants. Further advertisements were posted on social media platforms including Facebook and Instagram. Given the study's wide population of interest, the combination of social media and CloudResearch was well suited for recruitment as it provided access to a diverse range of international adult participants. All advertisements outlined the nature of the study and survey duration.

A total of 187 participants self-selected for the study between January 2026 and February 2026. Exclusion criteria were applied. Seven participants did not provide their age and were excluded from the study. All participants met the inclusion criteria of fluency in English. Forty-four cases were removed from the study during data screening and cleaning, see the results section for a detailed breakdown. This resulted in the final sample of 136.

Upon completion of the survey participants recruited via CloudResearch were paid \$4USD for their time as per CloudResearch's automated payment structure. Participants recruited via social media had the option to enter a prize draw to win one of two \$50AUD supermarket gift vouchers. Ethical approval for this study was obtained from the Monash University Human Research Ethics Committee (Project ID: 50103).

A priori power analysis was conducted in G*Power to determine the number of participants required to detect a significant effect [52]. Parameters were set to a power of 80%, alpha level of $\alpha = .05$, and a medium effect size ($f^2 = 0.15$) [53]. A required sample size of 55 participants was calculated. The current study's sample of 136 met the intended sample size.

2.2 Measures

All measures were provided in a single online survey hosted on the Qualtrics XM platform, a secure cloud-based platform designed to distribute surveys and collect data. The Qualtrics hosted survey provided the study's explanatory statement upfront informing participants of the study's purpose, ethical considerations and associated risks and benefits. Participants completed initial demographic questions regarding age and gender. Scales measuring exposure to life challenge, psychological resilience, and psychological risk were then presented in that order. The survey took approximately 15 minutes to complete. The current study forms part of a larger modular student research project. A measure for psychological recovery was also included in the survey as part of another student's research project, but associated data was not included in the current study.

2.2.1 Exposure to Life Challenge

Level of exposure to life challenge was measured using an adapted version of the Childhood Life Challenges Scale (CLCS) [54]. The wording of the original scale was adapted, removing specific references to children and childhood to make it appropriate for use in an adult sample. This single-item

scale measures subjective life challenge history based on amount and severity of challenges experienced. It takes approximately one to two minutes to complete. Participants place a mark on a sliding scale from 0 to 100. As a single-item scale, this score from 0 to 100 forms the final scale score.

The CLCS has the benefit of being faster, easier and less distressing to complete than other established scales measuring life challenges [54]. Other scales commonly utilise a checklist approach to by listing specific examples of difficult and traumatic experiences [28]. The detailed nature of these scales can make completion distressing [55]. The current study chose to utilise an adapted version of CLCS to reduce the risk of participant distress. The original CLCS is available for use via open domain and shows strong test-retest reliability, convergent validity and criterion validity [54]. As we have adapted the original scale for use with an adult population there is no previously available psychometric data relating specifically to the current sample. Internal consistency was not calculated due to the single-item nature of this measure.

2.2.2 Psychological Resilience

Level of psychological resilience was measured using the Brief Resilience Scale (BRS) [56]. This 6-item scale measures an individual's ability to bounce back or recover from stress. Participants are asked to respond to statements on a Likert-type scale from 1 (*Strongly disagree*) to 5 (*Strongly agree*), for example "I tend to bounce back quickly after hard times". This scale takes approximately two to five minutes to complete. An average score of all items is calculated with possible scores ranging between 6 and 30. Lower scores indicate lower levels of resilience, and higher scores indicate higher levels of resilience.

The BRS has good internal consistency, with Cronbach's alphas ranging from $\alpha = .80-.91$ [56], which was reflected in the current study ($\alpha = .86$) [57]. The BRS is internationally well-established in research on resilience, showing strong criterion validity across different countries [58]. Given the current study's broad population of interest and international sample, the BRS was considered to be a suitable measure of resilience for the current study. The BRS is freely available for use via open domain.

2.2.3 Psychological Risk

A scale was developed specifically for the current study to measure psychological risk. This 6-item scale asks participants to respond to statements on a Likert-type scale from 1 (*Strongly disagree*) to 5 (*Strongly agree*). Example items include "When something goes wrong in my life I usually feel like I can't cope with it". This scale takes approximately two to five minutes to complete. An average score of all items is calculated and possible scores range between 6 and 30. Lower scores indicate lower levels of psychological risk, and higher scores indicate higher levels of psychological risk.

The current study aimed to explore psychological risk, defined as an individual's overall risk of developing mental health and wellbeing disturbance or damage, within the context of the new Reality Psychology framework described in the introduction. As such, the development of a new fit for purpose measure for psychological risk was appropriate for the current study [59]. As an exploratory study, the purpose of the scale development was to provide an initial operationalisation of the construct. Further

psychometric evaluation, including examination of construct, criterion, and factorial validity, is warranted in future research.. Tests of internal consistency found an acceptable Cronbach's alpha of $\alpha = .77$ in the current study [57].

2.3 Procedure

Ethics approval was obtained from Monash University Human Research Ethics Committee prior to commencement of data collection (Project ID: 50103). Participants who responded to the CloudResearch or social media advertisements were directed to the Qualtrics hosted survey via a URL link. The survey could be completed on any device with internet access and could be completed at any time. Participants were first asked to read the provided explanatory statement informing them of the study's purpose, ethical considerations and associated risks and benefits. The risk to participants was no more than discomfort, which they were informed of in the explanatory statement. If participants wished to proceed, they provided implied informed consent by clicking the "next" button on their screen and beginning the survey. Participants were then asked to complete all items in the survey, including all demographic questions and scale items. The survey took an estimated 15 minutes to complete. Upon completion participant responses were automatically collected into Qualtrics. After this point withdrawal from the study was no longer possible as all data collected was anonymous and therefore unidentifiable. Following completion of the study a payment of \$4USD was made to participants via the CloudResearch platform. Participants recruited via social media were given the option to confidentially enter their details into a prize draw for one of two \$50AUD supermarket gift vouchers. Data collected in Qualtrics was then downloaded and stored securely on the Monash University cloud server and the Chief Investigator and student researcher's password protected computers.

2.4 Design

The current study utilised a correlational design. A cross-sectional online survey was used to investigate the relationships between life challenge (predictor variable), psychological resilience (moderator variable), and psychological risk (outcome variable). A moderated multiple regression analysis tested for significant main effects of life challenge and resilience on psychological risk, and a significant interaction effect of resilience on the relationship between life challenge and psychological risk. Exposure to life challenge, resilience and psychological risk were all measured as continuous data on interval scales.

3 Results

3.1 Data Cleaning

Data was exported from the Qualtrics platform and imported into IBM SPSS Statistics Version 31 (SPSS) for evaluation. Data was collected between January 2026 and February 2026. Of the 187 participants that self-selected to participate, 23 participants withdrew from the study before completion of the survey. Initial data screening indicated signs of passive participation and erroneous responses [60].

Seventeen participants completed the survey in a time that was less than realistically feasible (estimated at 90 seconds for the current study), and were removed from the final data set to reduce the risk of type 1 and 2 errors [61]. Four participants were removed from the final data set where inconsistent responses indicated non-genuine data, for example where participants selected all “strongly agree” despite the presence of reverse coding [60, 61]. Seven participants were removed as they did not meet the inclusion criteria as described in the methods section, resulting in the final sample of 136.

The data was assessed for missing and out-of-range values. No out-of-range values were identified. For the Life Challenge Scale there was six missing values found (4.4%). For the BRS there was 10 missing values found for Item 4 (7.4%), one missing value for Item 5 (0.7%) and three missing values for Item 6 (2.2%). For the Psychological Risk Scale there was one missing value for Item 2 (0.7%) and one missing value for Item 3 (0.7%). Little's MCAR Statistic was calculated to assess the pattern of missingness and indicated that the data was either Missing at Random (MAR) or Missing Not at Random (MNAR) ($\chi^2(82) = 117.06, p = .007$) [62, 63]. Multiple imputation was chosen to handle the missing data as it provides a more robust approach suitable to data MAR or MNAR [64]. Multiple imputation was completed in SPSS by creating five random multiple imputation data sets and combining them into a final pooled set [63, 65]. Using the new final pooled multiple imputation data set, the relevant scale items for resilience and psychological risk were reverse coded and average scores calculated to create final scale scores. Life challenge, resilience and psychological risk scores were assessed for univariate outliers ($z = \pm 3.29$) and none were identified [66].

3.2 Assumption Testing

The statistical assumptions relating to a moderated multiple regression analysis were evaluated. Prior to conducting assumption testing, grand mean centring was pre-emptively applied to the Life Challenges Scale and the BRS. The first reason for this was to create regression coefficients which considered the mean of the sample to improve the interpretability of the main effects, which was appropriate given that life challenge and resilience do not have meaningful scores for zero [63]. The second reason was that given the interaction term is derived from the predictor variable and the moderator variable, it is always expected to be highly correlated with them. Centring predictors pre-emptively reduced this increased risk of multicollinearity [67].

The assumption of adequate ratio of cases to predictors was met. The final sample size of 136 exceeded the required 77 calculated in the priori G*Power assessment, ensuring a significant effect could be detected [52, 63].

While not strictly a statistical assumption of a moderated multiple regression, univariate normality was assessed for using multiple converging techniques to examine individual variable distributions [66]. Visual inspection of histograms and Q-Q plots indicated that all variables had approximately normal distributions. No skewness and kurtosis values fell outside the normal range of ± 2 , indicating normal distribution [66]. Shapiro-Wilks tests were significant for life challenge ($p = .002$), resilience ($p = .015$) and the interaction term ($p = .004$), indicating normality [63]. The Shapiro-Wilks tests for psychological

risk was non-significant indicating a non-normality ($p = .207$) As moderated multiple regression analyses are robust to small to moderate departures from univariate normality and the current sample exceeded $N > 30$, the Central Limit Theorem was applied and univariate normality was assumed [63, 66].

Data was assessed for multivariate outliers. Two cases had a maximum Mahalanobis distance exceeding the critical χ^2 for $df = 3$ (at $\alpha = .001$) of 16.27, indicating they were multivariate outliers ($D^2 = 21.58$ and $D^2 = 20.38$) [66]. However, a maximum Cook's Distance of 0.1 was below the cutoff value of 1, indicating that no cases were influential to the overall model, and the multivariate outliers were retained [68, 69].

The assumptions of linearity and normality of residuals were assessed for visually. A visual inspection of a P-P Plot of standardised regression showed clustering of data points along the diagonal line, indicating that residuals were symmetrically distributed around a mean value of zero [70]. Furthermore, the standardised residuals scatterplot showed no major clustering of data points, indicating normality of residuals [63]. The standardised residuals scatterplot showed no pattern, slope or curve to the data points, indicating the assumption of linearity of residuals was met [66].

Data was assessed for the absence of autocorrelation and multicollinearity. A Durbin-Watson test statistic was used to assess for serial correlations of errors. The Durbin-Watson value of 1.55 fell within the normal range of 1–3, indicating there was no autocorrelation present the assumption of independence of errors was met [70]. Tolerance Values were all close to 1 (above the cut off value of 0.1) and Variance Inflation Factors were all close to 1 (under the cutoff value of 10), indicating absence of multicollinearity or singularity [63].

The standardised residuals scatterplot showed a cone-shape distribution of data points, with a wider spread of data points at higher standardised predicted values, suggesting the assumption of homoscedasticity of residuals had been violated. As $N \leq 250$, the HC3 heteroscedasticity-consistent approach to estimating standard errors was applied during the moderation analysis to handle this violation by increasing the predictability of the model [71].

3.3 Descriptive Statistics

The range, means, standard deviations, and bivariate correlations between study variables are provided in Table 2. The significant positive correlation between life challenge and psychological risk demonstrated a weak to moderate association, with greater life challenge predicting higher psychological risk. The significant negative correlation between life challenge and resilience demonstrated a weak association whereby greater life challenge predicts lower resilience. The significant negative relationship between psychological risk and resilience demonstrated a moderate association whereby higher resilience predicts lower psychological risk.

Table 2
Descriptive Statistics and Bivariate Correlations

Variable	Range	<i>M</i>	<i>SD</i>	1	2	3
1. Exposure to life challenges	0–100	58.94	24.08	—		
2. Psychological Risk	1–4.5	2.57	0.71	.35*	—	
3. Psychological Resilience	1.67–5	3.22	0.77	– .28*	– .52*	—

Note. *N* = 136.

* $p < .001$.

3.4 Inferential Statistics

A moderated multiple regression analysis was conducted using the PROCESS macro version 5.0 (Model 1) [72] with a heteroscedasticity-consistent approach to estimating standard errors (HC3) to determine whether resilience moderated the relationship between life challenge and psychological risk.

The overall model demonstrated a significant effect of life challenge and psychological risk on resilience ($R^2 = .32$, $F(3, 132) = 24.38$, $p < .001$). By Cohen's conventions [53], a combined effect of this magnitude can be considered "large" ($f^2 = .46$). The interaction term accounted for 0.05% of the variance in psychological risk alone, $F(1, 132) = 0.83$, $p = .774$.

There was a significant main effect found between life challenge and psychological risk ($b = 0.006$, $SEb = 0.002$, 95% CI [0.002, 0.01], $p = .009$), indicating that greater exposure to life challenge was significantly associated with higher levels of psychological risk. There was a significant main effect found between resilience and psychological risk ($b = -0.43$, $SEb = 0.07$, 95% CI [-0.58, -0.28], $p < .001$), indicating that higher levels of resilience were significantly associated with lower levels of psychological risk.

The interaction between life challenge and resilience was not significant ($b = 0.001$, $SEb = 0.003$, 95% CI [-0.006, -0.007], $p = .774$), suggesting that the effect of life challenge on psychological risk does not differ depending on level of resilience. Thus, resilience was not a significant moderator of the relationship between life challenge and psychological risk.

Figure 1 shows the regression plot for the relationship between life challenge and psychological risk at three levels of resilience ($-1SD$, $M + 1SD$), which has been included as a visual aid to support the discussion section below.

4 Discussion

The current study aimed to explore the relationships between life challenge, resilience and psychological risk, and whether the relationship between life challenge and psychological risk changes depending on level of resilience. The current study aimed to explore these variables and their relationships through the

lens of the newly proposed Reality Psychology framework. A moderated multiple regression was employed to examine these relationships. A significant positive linear relationship was found between life challenge and psychological risk, supporting the first hypothesis. A significant negative linear relationship was found between resilience and psychological risk, supporting the second hypothesis. However, the third hypothesis was not supported as the relationship between life challenge and psychological risk did not change at different levels of resilience. Although a significant moderation was not found, meaningful implications may still be drawn from the pattern of the regression slopes when also considering the resilience measure used.

4.1 Positive Association between Life Challenge and Psychological Risk

The finding that higher exposure to life challenge was significantly associated with higher psychological risk is consistent with past research that has observed positive associations between difficult life events and negative mental health and wellbeing outcomes [13, 15, 16, 17, 18]. Longitudinal research shows frequent and severe life challenges are associated with worsening mental health and wellbeing over time [1, 12, 73]. Theory proposes a bidirectional relationship whereby experiencing challenging or traumatic events can cause damage to psychological wellbeing [8, 11], and individuals at higher baseline psychological risk are likely to experience more frequent and severe life challenges [19, 74]. However, life challenges are also associated with benefits to psychological wellbeing suggesting that more complex interpretation may be required when considering the implications of this relationship [1]. Overall, the finding of a positive relationship between life challenge and psychological risk is consistent with past research and indicates a level of construct validity in the new measures developed for the current study.

4.2 Negative Association between Resilience and Psychological Risk

The finding that higher resilience was significantly associated with lower psychological risk is consistent with past research that observes negative relationships between resilience and variety of adverse mental health and wellbeing outcomes [35, 36, 37, 38, 39]. Previous studies using the BRS find it is associated with lower stress, trait anxiety and depressive symptoms, and increased positive emotions, mood and wellbeing [34, 44]. Theory proposes resilience acts as a protective factor for psychological wellbeing [23, 32]. Overall, the significant negative relationship found between resilience and psychological risk is consistent with previous research and theory.

4.4 The Effect of Resilience on the Life Challenge and Psychological Risk Relationship

The finding that resilience did not statistically significantly moderate the relationship between life challenge and psychological risk was unexpected and inconsistent with previous literature. Previous

studies generally find that resilience changes the nature of the relationship between life events and psychological outcomes [21, 43, 44, 45, 46, 47, 48].

However, the non-significant moderation finding may still provide an important theoretical insight. The interaction effect was far from reaching significance. This combined with the parallel pattern of the regression slopes at low, average and high levels of resilience observed in Fig. 1, demonstrate that resilience had little to no bearing on the strength of the relationship. One possible interpretation is that the Brief Resilience Scale captures a specific subtype of resilience, the ability to bounce back from adversity, and that this subtype may function differently from broader resilience constructs examined in previous studies. This interpretation is, however, speculative and requires direct empirical testing. The BRS was chosen as the most suitable resilience scale for the current study given the associated time and resource constraints of student thesis research. However, most previous studies utilise more complex and holistic measures of resilience that include a broad range of resilience subtypes such as cognitive resilience, emotional regulation and social resilience [15, 75]. The BRS only measures one specific type of resilience, the ability to bounce back or recover from stress [56]. Two previous studies that did not find a moderating effect of resilience on life events and psychological outcomes, also used the BRS to measure resilience [49, 50]. It may be that the ability to “bounce back” is not one of the resilience factors that can change the strength of the relationship between life challenge and psychological risk.

There are possible alternative explanations for the non-significant moderation finding. Another way the current study differs from previous research is the use of new measurements for life challenge and psychological risk. It is possible that the results differ to previous research based on these differing methodological contributions. However, the supported hypotheses for both main effects would indicate the new measures are likely aligned with previous research [59]. Another possible explanation is differing characteristics of the current sample. Previous studies have shown resilience does not always act as a moderator in samples exposed to severe trauma [49, 50, 51]. However, the current study was designed to measure a broad spectrum of life challenges utilising a sample from the general adult population, thus it is unlikely that this effect explains the current results. This suggests the most likely explanation for the inconsistency between previous research and the current study's finding is that the bounce back subtype of resilience does not change the relationship between life challenge and psychological risk, while other subtypes or broader measures of resilience do.

4.5 Strengths

The current study is a pioneering exploration of the Reality Psychology framework. It is strengthened by its novel use of Reality Psychology's conception and measurement of psychological risk [2]. The newly developed psychological risk scale demonstrated acceptable internal consistency in this sample, providing preliminary support for its use. Further validation is required before firm conclusions regarding construct validity can be drawn. [57]. Findings were consistent with previous research examining similar constructs, suggesting a level of construct validity present in the new psychological risk measure [76].

Another strength of the current study is the use of a subjective measurement for life challenge. Previous studies on life challenge commonly utilise a checklist approach, listing specific events and asking participants to indicate if they have been through that experience [28]. But life challenges are not uniform experiences, and their impact varies between individuals [12]. Life challenges are by their nature experienced subjectively. Using a subjective measure of life challenge places the authority of that knowledge back on the individual who experienced the impact of those events [27]. The sliding scale used in the current study is likely to be less distressing for participants to complete than reading through a checklist of potentially triggering examples of life challenges [55]. Checklist style measures of life events are limited by and to the examples they comprise of [28]. The current study expanded on this by measuring life challenge as a combination of frequency and severity within a single subjective score [54].

The recruitment method and chosen sample of the current study provide further methodological strengths. The use of a short cross-sectional survey and multiple recruitment paths via social media and CloudResearch, increased the accessibility of participation [77]. These decisions were important given the short recruitment period and resource constraints of a student research project. They directly contributed to the adequate participation and statistical power of the study. Furthermore, the current study's international general adult sample allows for findings to be applied to a wide population, increasing the reach of any implications and benefits associated with its findings.

4.6 Limitations

Pursuing pioneering research comes with necessary limitations. The measures for psychological risk and life challenge were newly developed or adapted for the purpose of this study and therefore the availability of psychometric properties is limited [59]. The original Childhood Life Challenges Scale was validated against checklist style measures of life challenge for children and was found to be highly correlated [54]. However, the adapted version created for adults in the current study is yet to be tested. In the future, it would help to test the reliability and validity of these measures further, comparing them against established scales and real-life psychological outcomes to establish their construct and criterion validity [76].

Another limitation of the current study is the risk of self-report bias. The decision to use a subjective measure for life challenge was theoretically driven and its strengths have been noted. However, there is a trade-off whereby factors such as mood, mental state and situational factors can bias how participants self-describe the challenges of their life [78]. Some individuals with a history of trauma have been known to minimise the severity of their experiences as a cognitive coping strategy, which can result in underreporting of life challenge [79, 80]. Individual and cultural perceptions of life challenges can also differ, potentially altering how life challenge is reported [20]. Future research could utilise a combination of subjective self-report, checklist style measures, and measures completed by relatives or clinical professionals to compare results and examine any impacts of self-reporting bias [54].

As a cross-sectional survey, the current study is limited to providing information about the correlations between variables and cannot infer any causation. Practical and ethical constraints of the current study have influenced the choice to utilise a correlational design. Creating experimental conditions where participants are subjected to life challenges that could potentially result in psychological damage risks breaching the basic ethical principal of “do no harm” [81]. Indeed, studying life challenges in highly controlled experimental settings may not provide results representative of real life experiences. Life challenge, resilience and psychological risk are dynamic variables that are expected to change over a person’s life. A cross-sectional view of these variables limits the ability to identify fluctuations over time [12]. Future research utilising longitudinal approaches could help clarify temporal sequencing, causal relationships and patterns over time [1].

4.7 Considerations for Future Research

The current study possessed both strengths and limitations that can provide direction for future research. Future studies can continue to build on the exploration of Reality Psychology to further test the new measures and conceptions of this framework. The short pilot version of the psychological risk scale showed promise in the current study and could be expanded on in future to create a more comprehensive scale [59]. Longitudinal designs could be adopted to examine temporal sequencing and complexity of patterns in life challenge, resilience and psychological risk over time [1]. Current research could be expanded to include other known contributors to these inter-relationships by utilising more complex structural equation modelling [82]. The finding that bounce back resilience did not moderate the relationship between life challenge and psychological risk can be expanded on by exploring other aspects of psychological resilience separately and investigating which subtypes of resilience do moderate this relationship. Overall, this initial exploration of life challenge, resilience and psychological risk paves the way for more complex methodologies to be applied and knowledge to continue to be built on.

4.8 Implications of the Current Study

4.8.1 Theoretical Implications

Despite the non-significant moderation finding, the results pose interesting theoretical implications for psychological resilience. When compared with previous contrasting literature, results indicate that different aspects of resilience play different roles in the life challenge and psychological risk relationship. It is proposed that different aspects of resilience should be studied separately to best understand their impact on life challenge and psychological risk. Studies that have utilised the BRS should consider that their findings only apply to that subtype and not extend claims about psychological resilience more generally. Meta-analyses have similarly concluded that the diverse definitions and scales used to measure the overarching concept of “resilience” creates difficulty in comparing and synthesizing research on resilience [15, 32]. Different subtypes of resilience may hold different relationships with different types of life challenge. The inclusion of multiple subtypes of resilience into a single scale score could therefore confound results of resilience studies [83]. It is suggested that subtypes of resilience are

best examined separately, particularly the bounce back subtype of resilience, in the context of life challenges and associated psychological risk.

4.8.2 Clinical Implications

Findings suggest that one way to reduce psychological risk and improve mental health and wellbeing outcomes may be through increasing psychological resilience. Interventions aimed at increasing resilience have been successfully used in clinical and educational settings and typically comprise of psychoeducation and targeted resilience building strategies [40]. Preventative resilience interventions specifically aimed at increasing the ability to bounce back from stress have been shown to improve overall psychological outcomes in educational settings [84]. However, the current study indicates there is an important distinction to make when considering resilience interventions. Findings suggest that there is a limit to what increasing the bounce back subtype of resilience alone can achieve. Interventions aimed at increasing bounce back resilience can still reduce psychological risk generally, but it may not be the optimum target when supporting people facing high levels of adversity. Individuals with very high life challenge would likely experience greater benefit from interventions targeting additional aspects of resilience, such as improving emotional regulation, social resilience and self-efficacy [46, 85].

Another approach to reducing psychological risk could be to attempt to reduce exposure to life challenge, however this poses more complexity as a realistic clinical intervention [1]. There are benefits associated with experiencing life challenge and reducing exposure to challenges may risk sacrificing opportunities for growth, development of self-knowledge and a deeper sense of meaning that these experiences can provide [22, 24, 85]. For those at high psychological risk, clinical interventions providing strategies and supports aimed at preventing adverse or traumatic experience is a reasonable approach. However, taking a community and policy level approach to reducing excessive life challenge may be a more appropriate intervention [9, 80]. Challenges and hardships in life are often out of our personal control. Interventions aimed at reducing life challenge on an individual basis may therefore be difficult to clinically define and implement. Many forms of hardship are tied to wider social and structural conditions [9, 74]. Implementing social, health and economic policies that aim to reduce unnecessary and damaging life challenges in high risk communities may be a more effective approach than focusing on individual coping.

5 Conclusion

The current study was a novel exploration of the Reality Psychology framework. For people who have experienced severe hardship or psychological wellbeing struggles, the findings of this study suggest that resilience may be a potentially modifiable factor that is associated with lower psychological risk. Facing adversity increases the risk of negative mental health and wellbeing, and that is a reality that people live with every day [1]. The acknowledgment of that reality is potentially validating, and could provide relief from the notion that we should try to feel positive all of the time; sometimes life can be challenging and hurtful. The present findings provide preliminary evidence supporting associations between life

challenge, resilience and psychological risk consistent with the Reality Psychology framework. Further replication and longitudinal investigation are required to validate the approach.

. A life with no challenge is not realistic or perhaps even desirable, however there could be real hope for people who have experienced the harsher end of life's wellness continuum, that there are tangible and research-evidence based ways to break the negative life challenge response cycle, find meaning, and experience a more joyful life.

Declarations

Accordance Statement

This study was approved by the Monash University Human Research Ethics Committee (MUHREC) in accordance with the relevant guidelines and regulations set forth by Monash University. The protocol number for this approval is Project ID: 50103.

Ethics approval and consent to participate

Ethical approval for the current study was obtained from Monash University Human Research Ethics Committee (MUHREC) (Project ID: 50103). The nature of the study was outlined clearly in the explanatory statement provided to participants. The risk to participants was no more than discomfort, which they were informed of in detail in the explanatory statement. The explanatory statement was required to be confirmed as read and understood prior to participants providing informed consent. Participants were informed of their right to withdraw from study at any time. The point at which anonymisation of data occurred was also clearly outline for participants to be aware when the option to retract data was no longer available.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Funding

This research was funded by Monash University as part of the Graduate Diploma of Psychology accredited 4th year program.

Author Contribution

Conceptualisation: S.M. ; Methodology: A.C; Data Collection: A.C. & M.A ; Data Analysis: A.C. ; Writing of manuscript draft: A.C.; Reviewing and editing: S.M.; Supervision: S.M. Please note all authors reviewed the results and approved the final version of the manuscript.

Acknowledgement

The authors would like to express gratitude to all those who offered support, help and guidance throughout this study.

Data Availability

The data supporting this study's findings are available from the corresponding author with the permission of Monash University upon request.

References

1. Cleland C, Kearns A, Tannahill C, Ellaway A. The impact of life events on adult physical and mental health and well-being: Longitudinal analysis using the GoWell health and well-being survey. *BMC Res Notes*. 2016;9(1):470. <https://doi.org/10.1186/s13104-016-2278-x>.
2. McKenzie SP. *Reality Psychology: A new perspective on wellbeing, mindfulness, resilience and connection*. Springer Int Publishing. 2022. <https://doi.org/10.1007/978-3-030-97170-0>.
3. Furber G, Leach M, Guy S, Segal L. Developing a broad categorisation scheme to describe risk factors for mental illness, for use in prevention policy and planning. *Australian New Z J Psychiatry*. 2017;51(3):230–40. <https://doi.org/10.1177/0004867416642844>.
4. Seligman MEP, Csikszentmihalyi M. (2014). Positive Psychology: An introduction. In M. Csikszentmihalyi, *Flow and the Foundations of Positive Psychology* (pp. 279–298). Springer Netherlands. https://doi.org/10.1007/978-94-017-9088-8_18
5. Carr A, Cullen K, Keeney C, Canning C, Mooney O, Chinseallaigh E, O'Dowd A. Effectiveness of Positive Psychology interventions: A systematic review and meta-analysis. *J Posit Psychol*. 2021;16(6):749–69. <https://doi.org/10.1080/17439760.2020.1818807>.
6. Van Zyl LE, Gaffaney J, Van Der Vaart L, Dik BJ, Donaldson SI. The critiques and criticisms of Positive Psychology: A systematic review. *J Posit Psychol*. 2024;19(2):206–35. <https://doi.org/10.1080/17439760.2023.2178956>.
7. Gaffaney J, Donaldson SI. Addressing the criticisms and critiques Positive Psychology: Recommendations for improving the science and practice of the field. *Front Psychol*. 2025;16:1548612. <https://doi.org/10.3389/fpsyg.2025.1548612>.
8. Carlson EB, Palmieri PA, Field NP, Dalenberg CJ, Macia KS, Spain DA. Contributions of risk and protective factors to prediction of psychological symptoms after traumatic experiences. *Compr*

- Psychiatr. 2016;69:106–15. <https://doi.org/10.1016/j.comppsy.2016.04.022>.
9. Huppert FA. Psychological well-being: Evidence regarding its causes and consequences. *Appl Psychology: Health Well-Being*. 2009;1(2):137–64. <https://doi.org/10.1111/j.1758-0854.2009.01008.x>.
 10. Champion J, Nurse J. (2007). A dynamic model for wellbeing. *Australasian Psychiatry*,15(1_suppl), S24–S28. <https://doi.org/10.1080/10398560701701106>
 11. Kessler RC. The effects of stressful life events on depression. *Ann Rev Psychol*. 1997;48(1):191–214.
 12. Kettlewell N, Morris RW, Ho N, Cobb-Clark DA, Cripps S, Glozier N. The differential impact of major life events on cognitive and affective wellbeing. *SSM - Popul Health*. 2020;10:100533. <https://doi.org/10.1016/j.ssmph.2019.100533>.
 13. Agorastos A, Pittman JOE, Angkaw AC, Nievergelt CM, Hansen CJ, Aversa LH, Parisi SA, Barkauskas DA, Baker DG. The cumulative effect of different childhood trauma types on self-reported symptoms of adult male depression and PTSD, substance abuse and health-related quality of life in a large active-duty military cohort. *J Psychiatr Res*. 2014;58:46–54. <https://doi.org/10.1016/j.jpsychires.2014.07.014>.
 14. Schulz A, Becker M, Van Der Auwera S, Barnow S, Appel K, Mahler J, Schmidt CO, John U, Freyberger HJ, Grabe HJ. The impact of childhood trauma on depression: Does resilience matter? Population-based results from the Study of Health in Pomerania. *J Psychosom Res*. 2014;77(2):97–103. <https://doi.org/10.1016/j.jpsychores.2014.06.008>.
 15. Watters ER, Aloe AM, Wojciak AS. Examining the associations between childhood trauma, resilience, and depression: A multivariate meta-analysis. *Trauma Violence Abuse*. 2023;24(1):231–44. <https://doi.org/10.1177/15248380211029397>.
 16. Edwards KM, Probst DR, Rodenhizer-Stämpfli KA, Gidycz CA, Tansill EC. Multiplicity of child maltreatment and biopsychosocial outcomes in young adulthood: The moderating role of resiliency characteristics among female survivors. *Child Maltreat*. 2014;19(3–4):188–98. <https://doi.org/10.1177/1077559514543354>.
 17. Hughes K, Lowey H, Quigg Z, Bellis MA. Relationships between adverse childhood experiences and adult mental well-being: Results from an English national household survey. *BMC Public Health*. 2016;16(1):222. <https://doi.org/10.1186/s12889-016-2906-3>.
 18. Richardson S, Carr E, Netuveli G, Sacker A. Adverse events over the life course and later-life wellbeing and depressive symptoms in older people. *Int Psychogeriatr*. 2023;35(5):243–57. <https://doi.org/10.1017/S1041610220003373>.
 19. Hofgaard LS, Nes RB, Vassend O, Ayorech Z, Czajkowski NO, Røysamb E. Mental illbeing and wellbeing are influenced by recent adverse life events. Evidence from a longitudinal twin study. *Curr Psychol*. 2025;44(10):8723–35. <https://doi.org/10.1007/s12144-025-07758-3>.
 20. Job V, Mlynski C, Bauer CA. How rethinking difficulties can shape important life outcomes. *Trends Cogn Sci*. 2025;29(11):1048–60. <https://doi.org/10.1016/j.tics.2025.05.018>.

21. Werner E. The children of Kauai: Resiliency and recovery in adolescence and adulthood. *J Adolesc Health*. 1992;13(4):262–8. [https://doi.org/10.1016/1054-139X\(92\)90157-7](https://doi.org/10.1016/1054-139X(92)90157-7).
22. Henson C, Truchot D, Canevello A. What promotes post traumatic growth? A systematic review. *Eur J Trauma Dissociation*. 2021;5(4):100195. <https://doi.org/10.1016/j.ejtd.2020.100195>.
23. Vella SLC, Pai N. A theoretical review of psychological resilience: Defining resilience and resilience research over the decades. *Archives Med Health Sci*. 2019;7(2):233. https://doi.org/10.4103/amhs.amhs_119_19.
24. Henderson AS, Montgomery IM, Williams CL. Psychological Immunisation. *Lancet*. 1972;299(7760):1111–3. [https://doi.org/10.1016/S0140-6736\(72\)91441-9](https://doi.org/10.1016/S0140-6736(72)91441-9).
25. Robertson IH. The stress test: Can stress ever be beneficial? *J Br Acad*. 2017;5:163–76. <https://doi.org/10.5871/jba/005.163>.
26. Infurna FJ, Jayawickreme E. Fixing the growth illusion: New directions for research in resilience and posttraumatic growth. *Curr Dir Psychol Sci*. 2019;28(2):152–8. <https://doi.org/10.1177/0963721419827017>.
27. Paykel ES. The evolution of life events research in psychiatry. *J Affect Disord*. 2001;62(3):141–9. [https://doi.org/10.1016/S0165-0327\(00\)00174-9](https://doi.org/10.1016/S0165-0327(00)00174-9).
28. Dohrenwend BP. Inventorying stressful life events as risk factors for psychopathology: Toward resolution of the problem of intracategory variability. *Psychol Bull*. 2006;132(3):477–95. <https://doi.org/10.1037/0033-2909.132.3.477>.
29. Richardson GE, Neiger BL, Jensen S, Kumpfer KL. The resiliency model. *Health Educ*. 1990;21(6):33–9. <https://doi.org/10.1080/00970050.1990.10614589>.
30. Ayed N, Toner S, Priebe S. Conceptualizing resilience in adult mental health literature: A systematic review and narrative synthesis. *Psychol Psychotherapy: Theory Res Pract*. 2019;92(3):299–341. <https://doi.org/10.1111/papt.12185>.
31. Rutter M. Resilience as a dynamic concept. *Dev Psychopathol*. 2012;24(2):335–44. <https://doi.org/10.1017/S0954579412000028>.
32. Schultze-Lutter F, Schimmelmann BG, Schmidt SJ. Resilience, risk, mental health and well-being: Associations and conceptual differences. *Eur Child Adolesc Psychiatry*. 2016;25(5):459–66. <https://doi.org/10.1007/s00787-016-0851-4>.
33. Campbell-Sills L, Stein MB. Psychometric analysis and refinement of the Connor–Davidson Resilience Scale (CD-RISC): Validation of a 10-item measure of resilience. *J Trauma Stress*. 2007;20(6):1019–28. <https://doi.org/10.1002/jts.20271>.
34. Gloria CT, Steinhardt MA. Relationships among positive emotions, coping, resilience and mental health. *Stress Health*. 2016;32(2):145–56. <https://doi.org/10.1002/smi.2589>.
35. Havnen A, Anyan F, Hjemdal O, Solem S, Gurigard Riksfjord M, Hagen K. Resilience moderates negative outcome from stress during the COVID-19 pandemic: A moderated-mediation approach. *Int J Environ Res Public Health*. 2020;17(18):6461. <https://doi.org/10.3390/ijerph17186461>.

36. Gao T, Ding X, Chai J, Zhang Z, Zhang H, Kong Y, Mei S. The Influence of resilience on mental health: The role of general well-being. *Int J Nurs Pract*. 2017;23(3):e12535. <https://doi.org/10.1111/ijn.12535>.
37. Tamarit A, De La Barrera U, Schoeps K, Castro-Calvo J, Montoya Castilla I. Analyzing the role of resilience and life satisfaction as mediators of the impact of COVID-19 worries on mental health. *J Community Psychol*. 2023;51(1):234–50. <https://doi.org/10.1002/jcop.22900>.
38. Yildirim M, Aziz IA, Vostanis P, Hassan MN. Associations among resilience, hope, social support, feeling belongingness, satisfaction with life, and flourishing among Syrian minority refugees. *J Ethn Subst Abuse*. 2024;23(1):166–81. <https://doi.org/10.1080/15332640.2022.2078918>.
39. Schäfer SK, Supke M, Kausmann C, Schaubrich LM, Lieb K, Cohrdes C. A systematic review of individual, social, and societal resilience factors in response to societal challenges and crises. *Commun Psychol*. 2024;2(1):92. <https://doi.org/10.1038/s44271-024-00138-w>.
40. Joyce S, Shand F, Tighe J, Laurent SJ, Bryant RA, Harvey SB. Road to resilience: A systematic review and meta-analysis of resilience training programmes and interventions. *BMJ Open*. 2018;8(6):e017858. <https://doi.org/10.1136/bmjopen-2017-017858>.
41. Sayed T, Malan H, Fourie E. Exploring the associations between resilience and psychological well-being among South Africans during COVID-19. *Front Psychol*. 2024;15:1323466. <https://doi.org/10.3389/fpsyg.2024.1323466>.
42. Southwick SM, Bonanno GA, Masten AS, Panter-Brick C, Yehuda R. Resilience definitions, theory, and challenges: Interdisciplinary perspectives. *Eur J Psychotraumatology*. 2014;5(1):25338. <https://doi.org/10.3402/ejpt.v5.25338>.
43. Li Z, Zha J, Zhang P, Shangguan C, Wang X, Lu J, Zhang M. Negative life events and mood states: Emotional resilience as mediator and moderator. *Social Behav Personality: Int J*. 2020;48(5):1–12. <https://doi.org/10.2224/sbp.8843>.
44. Peng L, Zhang J, Li M, Li P, Zhang Y, Zuo X, Miao Y, Xu Y. Negative life events and mental health of Chinese medical students: The effect of resilience, personality and social support. *Psychiatry Res*. 2012;196(1):138–41. <https://doi.org/10.1016/j.psychres.2011.12.006>.
45. Ding H, Han J, Zhang M, Wang K, Gong J, Yang S. Moderating and mediating effects of resilience between childhood trauma and depressive symptoms in Chinese children. *J Affect Disord*. 2017;211:130–5. <https://doi.org/10.1016/j.jad.2016.12.056>.
46. Lee EE, Martin AS, Tu X, Palmer BW, Jeste DV. Childhood adversity and schizophrenia: The protective role of resilience in mental and physical health and metabolic markers. *J Clin Psychiatry*. 2018;79(3). <https://doi.org/10.4088/JCP.17m11776>.
47. Wingo AP, Wrenn G, Pelletier T, Gutman AR, Bradley B, Ressler KJ. Moderating effects of resilience on depression in individuals with a history of childhood abuse or trauma exposure. *J Affect Disord*. 2010;126(3):411–4. <https://doi.org/10.1016/j.jad.2010.04.009>.
48. Rufino KA, Babb SJ, Johnson RM. Moderating effects of emotion regulation difficulties and resilience on students' mental health and well-being during the COVID-19 pandemic. *J Adult*

- Continuing Educ. 2022;28(2):397–413. <https://doi.org/10.1177/14779714221099609>.
49. Fedina L, Nam B, Jun H-J, Shah R, Von Mach T, Bright CL, DeVlyder J. Moderating effects of resilience on depression, psychological distress, and suicidal ideation associated with interpersonal violence. *J Interpers Violence*. 2021;36(3–4). <https://doi.org/10.1177/0886260517746183>. NP1335-1358NP.
50. Schnarrs PW, Stone AL, Salcido R, Georgiou C, Zhou X, Nemeroff CB. The moderating effect of resilience on the relationship between adverse childhood experiences (ACEs) and quality of physical and mental health among adult sexual and gender minorities. *Behav Med*. 2020;46(3–4):366–74. <https://doi.org/10.1080/08964289.2020.1727406>.
51. Sleijpen M, Van Der Aa N, Mooren T, Laban CJ, Kleber RJ. The moderating role of individual resilience in refugee and Dutch adolescents after trauma. *Psychol Trauma: Theory Res Pract Policy*. 2019;11(7):732–42. <https://doi.org/10.1037/tra0000450>.
52. Faul F, Erdfelder E, Lang A-G, Buchner A. G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behav Res Methods*. 2007;39(2):175–91. <https://doi.org/10.3758/BF03193146>.
53. Cohen J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Routledge. <https://doi.org/10.4324/9780203771587>
54. Merrick JS, Labella MH, Narayan AJ, Desjardins CD, Barnes AJ, Masten AS. The Child Life Challenges Scale (CLCS): Associations of a single-item rating of global child adversity with children's total life stressors and parents' childhood adversity. *Children*. 2020;7(4):33. <https://doi.org/10.3390/children7040033>.
55. Jaffe AE, DiLillo D, Hoffman L, Haikalis M, Dykstra RE. Does it hurt to ask? A meta-analysis of participant reactions to trauma research. *Clin Psychol Rev*. 2015;40:40–56. <https://doi.org/10.1016/j.cpr.2015.05.004>.
56. Smith BW, Dalen J, Wiggins K, Tooley E, Christopher P, Bernard J. The Brief Resilience Scale: Assessing the ability to bounce back. *Int J Behav Med*. 2008;15(3):194–200. <https://doi.org/10.1080/10705500802222972>.
57. Cronbach LJ. Coefficient alpha and the internal structure of tests. *Psychometrika*. 1951;16(3):297–334. <https://doi.org/10.1007/BF02310555>.
58. Zhou Z, Ma Z. Evaluating the Brief Resilience Scale in 21 countries: Psychometric properties and measurement invariance across sex, age, and countries. *Assessment*. 2025;10731911251355124. <https://doi.org/10.1177/10731911251355124>.
59. Boateng GO, Neilands TB, Frongillo EA, Melgar-Quiñonez HR, Young SL. Best practices for developing and validating scales for health, social, and behavioral research: A primer. *Front Public Health*. 2018;6:149. <https://doi.org/10.3389/fpubh.2018.00149>.
60. Huang JL, Curran PG, Keeney J, Poposki EM, DeShon RP. Detecting and deterring insufficient effort responding to surveys. *J Bus Psychol*. 2012;27(1):99–114. <https://doi.org/10.1007/s10869-011-9231-8>.

61. Ward MK, Meade AW. Dealing with careless responding in survey data: Prevention, identification, and recommended best practices. *Ann Rev Psychol.* 2023;74(1):577–96.
<https://doi.org/10.1146/annurev-psych-040422-045007>.
62. Little RJA. A test of missing completely at random for multivariate data with missing values. *J Am Stat Assoc.* 1988;83(404):1198–202. <https://doi.org/10.1080/01621459.1988.10478722>.
63. Tabachnick B, Fidell L. (2019). *Using multivariate statistics*. Pearson Education.
64. Heymans MW, Twisk JWR. Handling missing data in clinical research. *J Clin Epidemiol.* 2022;151:185–8. <https://doi.org/10.1016/j.jclinepi.2022.08.016>.
65. Rubin DB. Multiple imputation after 18 + years. *J Am Stat Assoc.* 1996;91(434):473–89.
<https://doi.org/10.1080/01621459.1996.10476908>.
66. Field A. *Discovering statistics using IBM SPSS statistics*. 6th ed. Sage; 2024.
67. Shieh G. Clarifying the role of mean centring in multicollinearity of interaction effects. *Br J Math Stat Psychol.* 2011;64(3):462–77. <https://doi.org/10.1111/j.2044-8317.2010.02002.x>.
68. Cook RD, Weisberg S. *Residuals and influence in regression*. Chapman & Hall; 1982.
69. El-Masri MM, Mowbray FI, Fox-Wasylyshyn SM, Kanters D. Multivariate outliers: A conceptual and practical overview for the nurse and health researcher. *Can J Nurs Res.* 2021;53(3):316–21.
<https://doi.org/10.1177/0844562120932054>.
70. Bennett K, Heritage B, Allen P. *SPSS statistics: A practical guide*. 5th ed. Cengage Learning; 2023.
71. Long JS, Ervin LH. (2000). Using heteroscedasticity consistent standard errors in the linear regression model. *Am Stat*, 54(3). <https://doi.org/10.1080/00031305.2000.10474549>
72. Hayes AF. *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. 3rd ed. Guilford; 2022.
73. Myers JK, Lindenthal JJ, Pepper MP, Ostrander DR. Life events and mental status: A longitudinal study. *J Health Soc Behav.* 1972;13(4):398. <https://doi.org/10.2307/2136832>.
74. Salem M, Robenson J. The impact of socioeconomic factors on mental health: A conceptual framework. *Cureus.* 2025. <https://doi.org/10.7759/cureus.88244>.
75. Connor KM, Davidson JRT. Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depress Anxiety.* 2003;18(2):76–82. <https://doi.org/10.1002/da.10113>.
76. Indu P, Vidhukumar K, Chacko D, Menon V, Grover S, Gupta S. Criterion validity, construct validity, and factor analysis: An introductory overview. *Indian J Psychiatry.* 2025;67(9):916–21.
https://doi.org/10.4103/indianjpsychiatry_911_25.
77. Wang X, Cheng Z. Cross-sectional studies. *Chest.* 2020;158(1):S65–71.
<https://doi.org/10.1016/j.chest.2020.03.012>.
78. Breton E, Kidman R, Behrman J, Mwera J, Kohler H-P. Longitudinal consistency of self-reports of adverse childhood experiences among adolescents in a low-income setting. *SSM - Popul Health.* 2022;19:101205. <https://doi.org/10.1016/j.ssmph.2022.101205>.

79. Gusler S, Jackson Y. Adversity's impact on adults' self-report and physiological difficulties with emotion regulation: Appraisal as a moderating mechanism. *J Aggress Maltreatment Trauma*. 2023;32(4):611–30. <https://doi.org/10.1080/10926771.2023.2179446>.
80. Lever JP. Poverty, stressful life events, and coping strategies. *Span J Psychol*. 2008;11(1):228–49. <https://doi.org/10.1017/S1138741600004273>.
81. Australian Psychological Society. (2007). *2007 APS code of ethics*.
82. MacCallum RC, Austin JT. Applications of structural equation modeling in psychological research. *Ann Rev Psychol*. 2000;51(1):201–26. <https://doi.org/10.1146/annurev.psych.51.1.201>.
83. Windle G, Bennett KM, Noyes J. A methodological review of resilience measurement scales. *Health Qual Life Outcomes*. 2011;9(1):8. <https://doi.org/10.1186/1477-7525-9-8>.
84. Humphrey N, Panayiotou M. Bounce back: Randomised trial of a brief, school based group intervention for children with emergent mental health difficulties. *Eur Child Adolesc Psychiatry*. 2022;31(1):205–10. <https://doi.org/10.1007/s00787-020-01612-6>.
85. Ewert A, Tessneer S. (2019). Psychological resilience and posttraumatic. growth. An exploratory analysis. *J Experiential Educ*, 42(3), 280–96. <https://doi.org/10.1177/1053825919859027>

Figures

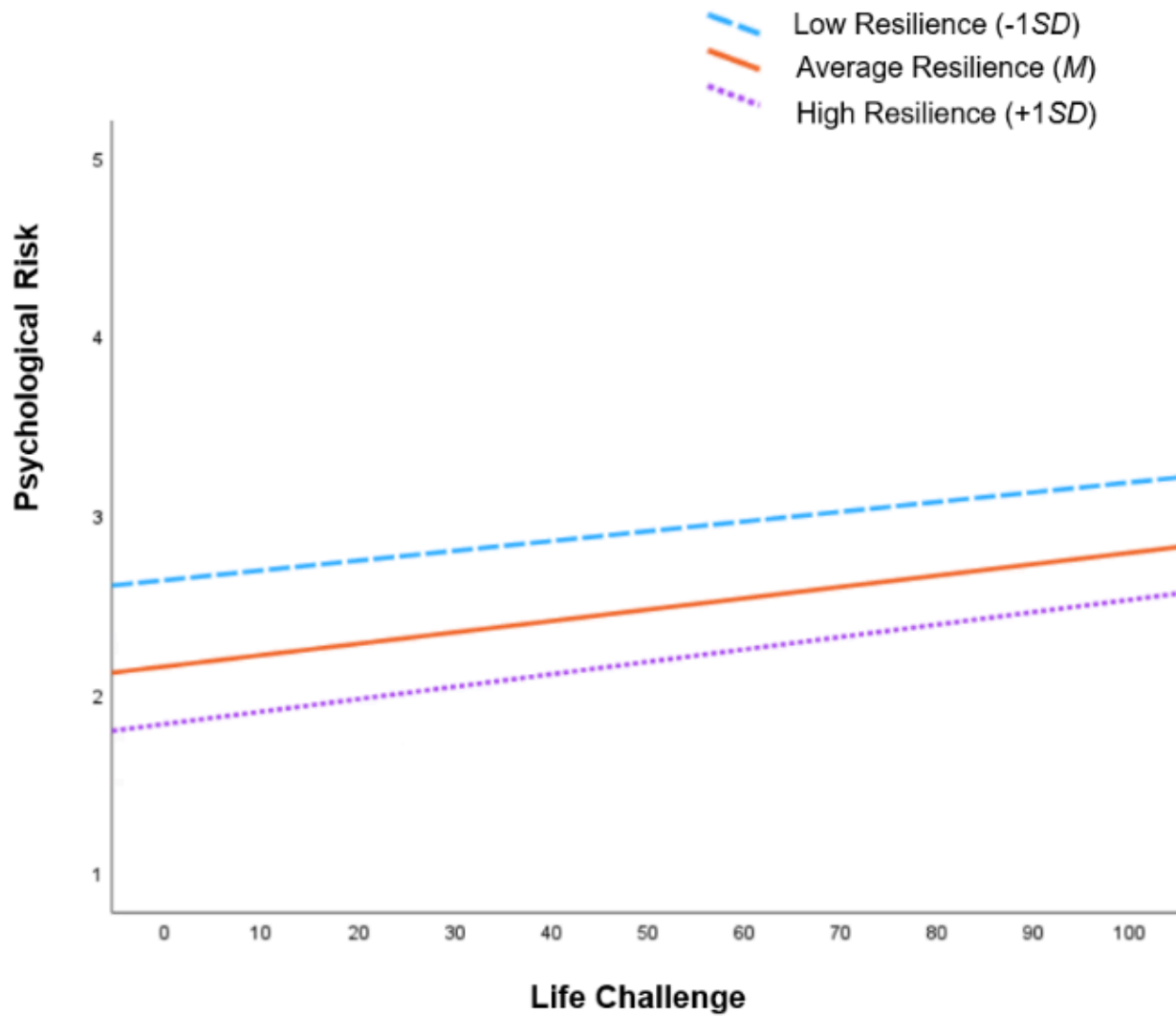


Figure 1

Regression Plot of Life Challenge and Psychological Risk at Different Levels of Resilience