

To explore the relationship between self-efficacy, mindfulness and life satisfaction

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ABSTRACT

Self-efficacy and mindfulness have previously been found to have positive impacts on well-being. Mindfulness also has been associated with positive emotional states, and life satisfaction is an element used in most subjective well being scales. The present study used a correlational design with questionnaire methods to explore the relationship between self-efficacy, mindfulness and life satisfaction. Students were recruited for this study using convenience-sampling methods (N = 86). Participants completed the General Self-Efficacy Scale (Schwarzer and Jerusalem, 1995), the trait Mindful Attention Awareness Scale (Brown and Ryan, 2003) and the Satisfaction With Life Scale (Diener et al., 1985). A significant relationship was found between self-efficacy and life satisfaction, and between mindfulness and life satisfaction. Self-efficacy and life satisfaction had the strongest relationship, as previous research suggested. Further analysis found self-efficacy significantly predicted life satisfaction, but mindfulness was non-significant at predicting life satisfaction in the model with self-efficacy. The findings suggest that self-efficacy was the strongest predictor for life satisfaction. The findings contribute to the understanding of life satisfaction and the benefits of high self-efficacy and mindfulness. Practical applications, limitations and future research suggestions are discussed in the report.

KEY WORDS:	SELF-EFFICACY	MINDFULNESS	LIFE SATISFACTION	CORRELATION	WELL-BEING

Introduction

The study of well-being has increased in popularity over the years within scientific study (Diener et al., 1999; Frey and Stutzer, 2002; Kahneman, 1999; Schimmack, Schupp and Wagner, 2008; Hsieh, 2003). Subjective well-being is one component of overall well-being, which may capture affective feelings and cognitive judgements people hold about their quality of life (Cheung and Lucas, 2014). Furthermore subjective well-being includes emotional responses, domain satisfaction, and global judgements of life satisfaction (Deiner et al., 1999). Domain satisfaction is an individual's satisfaction in different domains or areas of their life, for example family life or work (Easterlin and Sawangfa, 2007). Within domain satisfaction there are subjective goals, each domain will have different goals and therefore an objective outcome to these goals (Easterlin and Sawangfa, 2007). Deiner et al.'s (1999) research is specifically interested in the life satisfaction construct of subjective well-being. Although subjective well-being can be described as a broad concept it is generally accepted that there are cognitive and affective dimensions (Galinha and Pais-Ribeiro, 2011). Affective dimensions relate to moods and emotions, and cognitive dimensions relate to cognitive evaluations of life satisfaction (Deiner et al., 1999).

It is proposed that individuals should evaluate their own lives using self-reports; generally the individual will compare their life with a constructed ideal (Schimmack, et al. 2008). There have been two approaches suggested for life satisfaction: top-down and bottom-up. Top-down approaches propose that global life satisfaction is a construct to which individuals are pre-disposed, which can influence evaluation in specific domains (Hsieh, 2003). However, bottom-up approaches suggest that life satisfaction is the sum of satisfaction in various domains of life (Hsieh, 2003). Consequently top-down approaches consider the structure within a person, which can determine perception of situations and events. Research supports personality and positive predispositions as strong predictors of subjective well-being, rather than contextual factors (Lucas, 2008, cited in Galinha and Pais-Ribeiro, 2011). Bottom-up perspectives are focused on the external circumstances and their influence on the subjective experience of an individual. This approach would suggest that adverse life events or circumstances would impact on subjective well-being (Galinha and Pais-Ribeiro, 2011). However contextual factors often only demonstrate weak impact on an individual's subjective well-being in the short-term (Galinha and Pais-Ribeiro, 2011). The validity has been questioned for both the bottom-up and top-down approaches. Impacts of contextual factors may change with time as an individual refers back to their pre-disposed subjective well-being from intrapersonal factors, such as personality (Galinha and Pais-Ribeiro, 2011). Therefore an integrative approach may be suggested to be more successful to understand the interaction between the different factors. The measurement of subjective well-being can also be either global or specific. Global measures, for example using one answer to represent satisfaction of several aspects of life, are suggested to be more consistent over time (Galinha and Pais-Ribeiro, 2011). But specific measures, which measure satisfaction in a specific area of life, are suggested to add more understanding about causes of overall subjective well-being (Galinha

and Pais-Ribeiro, 2011). This study takes an integrative approach as mindfulness and self-efficacy could be considered to be traits of personality and intrapersonal factors, relating to the top-down perspective. On the other hand, the study is exploring life satisfaction in various domains. As this is an aspect of the bottom-up perspective, an individual may use contextual factors or intrapersonal factors when responding to the life satisfaction scale.

Self-efficacy has been found in previous research to predict life satisfaction (Proctor, Linley and Maltby, 2008). Bandura (Bandura, 1986) considers self-efficacy in the social-cognitive theory. The social-cognitive theory takes an agentic perspective, using agency to refer to acts done intentionally (Bandura, 2001). The theory proposes that our behaviour is not only controlled by the environment or internal drives, but that humans are able to make choices in the world (Bandura, 2001). Enabling people to adapt in certain circumstances through agentic action (Bandura, 2001). The theory suggests that people regulate their motivations and actions through self-evaluation (Bandura, 2001). Central to the social cognitive theory are self-efficacy beliefs, which could be described as factors that serve to guide and motivate certain behaviours, rooted in the belief that a desire or goal can be achieved (Bandura and Locke, 2003). Individual's beliefs about their capabilities may determine and influence how they behave, their thought patterns, and emotional reactions that can be experienced in difficult situations (Bandura, 1993; Bandura, 1986). Efficacy beliefs have been suggested to influence individuals thoughts, feelings, motivations and behaviours (Bandura, 1993). Research involving self-efficacy is often related to the workplace. Stajkovic and Luthans (1998) found that self-efficacy was found to relate positively to work-related performance. This research proposes (Stajkovic and Luthans, 1998) that self-efficacy beliefs, which relate to beliefs of ability, will result in better performance as individual's motivation may be increased. Further research (Judge and Bono, 2001) has built upon this basis, also looking at satisfaction within the workplace. Findings advise that self-evaluation traits, including self-efficacy, are the best predictors for both job satisfaction and performance (Judge and Bono, 2001). Furthermore, high self-efficacy has been found to correlate highly with academic achievements (Bong, 2001b; Chemers et al., 2001; Gore, 2006; Multon, Brown, and Lent, 1991; Zajacova, Lynch and Espenshade, 2005, cited in Hsieh, Sullivan and Guerra, 2007). The body of research suggests students who have higher self-efficacy are more likely to be hard-working and pursue challenging goals they may encounter, which is explained through stronger identified goals (Hsieh, Sullivan and Guerra, 2007). This finding with students and self-efficacy suggests a benefit of higher self-efficacy for students. Therefore in this study students were an appropriate sample choice to explore whether their levels of self-efficacy relate to their overall life satisfaction not academic success.

Conversely, most research looks at more predictors than self-efficacy alone. Research by Zajacova, Lynch and Espenshade (2005) explored both self-efficacy and stress as predictors of academic success. The research findings propose academic self-efficacy to be a more robust and consistent predictor than stress in terms of academic success (Zajaciva, Lync and Espenshade, 2005). Although self-efficacy is goal-focused, goals are not only limited to

education and the workplace. Individuals may have many different goals in all aspects of their life, including marriage, raising children, and friendships. Luszczynska, Gutiérrez-Doña and Schwarzer (2005) explored general self-efficacy, which they described as 'the belief in one's competence to tackle novel tasks and to cope with adversity in a broad range of stressful or challenging encounters' (2005; 80). According to their findings, workers with higher social life and job satisfaction had higher general self-efficacy scores (Luszczynska, Gutiérrez-Doña and Schwarzer, 2005). A study investigating relationships between general self-efficacy, planning for the future and life satisfaction suggest all concepts were intercorrelated (Azizli et al., 2015). However significant findings for this study were that scores from both the general self-efficacy scale and scores from the satisfaction with life scale had the strongest correlation (Azizli et al., 2015). Further research may benefit from exploring an individuals overall satisfaction with life, which will allow the individual to relate this to their satisfaction in different domains. Research (Caldwell et al., 2010) has found that when exploring effects of developing mindfulness on several constructs, there was an association between greater changes in self-efficacy, as well as other constructs, and mindfulness.

Mindfulness has increased in popularity over recent years, due to its proposed health and well-being benefits (Stolarski et al., 2016). Mindfulness has been described as a state of consciousness focusing on directing one's attention to the present moment, whilst also adopting a non-judgemental perspective toward experiences (Bullis et al., 2014). Mindfulness involves purely observation and taking notice of what is taking place and allowing it, rather than analysing or comparing it (Brown et al., 2009). Research has shown that dispositional mindfulness is different from a variety of constructs (Brown and Ryan, 2003), which allows researchers to use it as a separate measure. Dispositional mindfulness is defined as a trait, which refers to the tendency of being mindful in everyday life (Kong et al., 2014). An application of mindfulness is a programme called mindfulness-based stress reduction (MBSR), which was used by health care professionals as an intervention in a pilot study (Shapiro et al., 2005). The MBSR was found to be effective for reducing stress and increasing the quality of life of the individuals (Shapiro et al., 2005). However, due to this only being a pilot study (Shapiro et al., 2005), and the research only suggesting there may be an effect, further research is required. Furthering research on mindfulness may have positive implications on people's everyday lives, particularly through more frequent application of mindfulness. Research has suggested a well-established relationship between mindfulness and life satisfaction (Kong et al., 2014). Some studies that have demonstrated higher levels of mindfulness are associated with self-evaluation factors like self-efficacy (Greason and Cashwell, 2009; Oman et al., 2003 cited in Kong et al., 2014). This may add to an explanation for the relationship between mindfulness and life satisfaction as a mindful individual accepts thoughts and feelings, which may lead to more positive self-evaluation (Kong et al., 2014).

Furthermore Kong et al. (2014) found that core self-evaluations fully mediated

an association between mindfulness and life satisfaction. Participants with higher levels of mindfulness had higher core self-evaluations. In relation to this study this supports the relevance of mindfulness and self-efficacy in relation to life satisfaction. However there has been little focus on student's self-perceptions of mindfulness and life satisfaction in previous studies. Many students have been reported to view life satisfaction and happiness as extremely important (Deiner et al., 1999). Therefore it may be interesting to explore student's perceptions on their life satisfaction. Furthermore findings (Brown and Kasser, 2005; Brown and Ryan, 2003) have put forward that dispositional mindfulness is associated with higher well-being and positive emotional states, and life satisfaction is a primary component for some subjective well-being scales. Brown and Ryan specifically support higher life satisfaction as being associated with mindfulness, using the Mindful Attention Awareness Scale (MAAS). They did however also test for other constructs such as optimism and self-actualization. A limitation of mindfulness research (Brown and Ryan, 2003; Kong et al., 2014) could be that the use of questionnaire had only been designed to assess one of multiple facets of mindfulness, known as present-moment awareness (Bullis et al., 2014). Nonetheless this facet of mindfulness has useful applications in psychology. Present-moment awareness is a process within acceptance and commitment therapy (Hayes et al., 2006), a therapy based on mindfulness.

Existing research for mindfulness and well-being is targeting the population as a whole. The sample of students may be an interesting area to explore due to contextual factors, which may impact a student and affect their perception on life satisfaction. As students experience many stressors, for example academic or financial, these can become excessive having physical or psychological effects (Misra and McKean, 2000). Also apparent from the

literature is a lack of research exploring an association between both mindfulness and self-efficacy with life satisfaction. This study, based on the previous research, is interested with the association for students between self-efficacy, mindfulness and life satisfaction. Previous research suggests a positive association should be expected. It might be beneficial to explore whether self-efficacy or mindfulness is a stronger prediction of life satisfaction, as research is limited comparing the two in this domain. The hypotheses for this study have been formulated from previous findings (Brown and Kasser, 2005; Brown and Ryan, 2003; Kong et al., 2014; Azizli et al., 2015): (1) Self-efficacy will be positively correlated with life satisfaction. (2) Mindfulness will be positively correlated with life satisfaction.

Method

Design

This study was quantitative and used a correlational design and questionnaire methods. Correlation and multiple regression analysis were used to determine if a relationship existed between self-efficacy, mindfulness and life satisfaction. Questionnaires have previously been used in the literature for similar constructs (Luszczynska, Gutiérrez-Doña and Schwarzer, 2005; Karademas, 2006; Brown and Kasser, 2005; Brown and Ryan, 2003; Proctor, Linley and Maltby, 2008; Hsieh, 2003; Hsieh; Sullivan and Guerra, 2007). Therefore questionnaires are an appropriate methodology for this study.

Participants

The participants were recruited using the participation pool and an advertisement of the study on a social media profile (see Appendix 4). The post on social media was not linked to the researcher in any way to eliminate risk to the researcher. The participants were volunteers, who chose to proceed from the initial advertisements. The sample consisted of 86 students, which were recruited using convenience sampling. Although convenience sampling is difficult to generalise to the wider population, it is suitable for this study due to the time scale and the type of participants being recruited (Hedt and Pagano, 2011). Facebook and participation pool advertisements were used, both are available and used often by students. The participation pool was chosen as many students have access through a personal and secure account. On the other hand, social media was chosen due to it being accessed by a large amount of people including students. The social media advertisement was initially proposed if the participation pool did not recruit enough participants. This was the case and therefore most of the participants were recruited using the Facebook advertisement. The 86 participants are within the threshold suggested by Cohen (1992) for this type of study to have a medium effect size at significance level of .05.

Measures

The online questionnaire was produced on Qualtrics (Qualtrics, Provo, UT), using questions and scoring from previously validated questionnaires (see Appendix 6). The questionnaires were accessed by participants either through the participation pool or through the advertisement on social media. The advertisements consisted of a brief overview of what the study involves and an online website link which redirected them to the questionnaire. The questionnaires were standardised, providing the research participants with the same stimulus, in order for the results to be compared statistically (Christensen, Johnson and Turner, 2015). These survey methods measure attitudes, opinions and beliefs, if a good measurement procedure is used. The questionnaire method was used for this study as there was a relatively short time scale to collect data, and this method can collect larger amounts of responses in a short time (Christensen, Johnson and Turner, (2015). This method enables the research to discover the relationships and predictions, which can then make direct statistical generalisations (Christensen, Johnson and Turner, 2015). The aims of this study required statistical analysis to determine whether or not there was an association between the variables. Therefore questionnaires enabled individuals to give their opinions or thoughts using Likert scales to be measured quantitatively. Quantitative data can be analysed statistically to support or reject hypotheses, based on significant or non-significant findings. Likert scales are useful when using the questionnaire method, as they are less limiting to participants giving them a range of answers for an opinion (Mitchell and Jolley, 1996). There is some debate surrounding using likert scales as interval data. However previous research has suggested it is acceptable when appropriate to use likert scales as interval data for parametric testing (Mitchell and Jolley, 1996). This self-report method prevents the possibility of any researcher bias, and allows the participants to respond to questions at a time that is suitable for them (Kothari, 2004). Not being restricted to a time limit, and being able to provide anonymous responses could suggest that the data collected will be more representative.

The questionnaire-pack used in this study was comprised of three separate blocks used to measure each of the variables. The three separate questionnaires for self-efficacy, mindfulness and life satisfaction featured one after another in the questionnaire-pack for the study (see Appendix 6). The scale to measure self-efficacy was the General Self-Efficacy Scale (GSE) by Schwarzer and Jerusalem (1995). The response format for the GSE is a 4-point likert scale, ranging from '*Not at all true*' (1) to '*Exactly true*' (4). Higher scores on the scale represent higher self-efficacy, with the overall sum of

scores indicating the level of self-efficacy. There are 10-items in the GSE, for example: 'I am confident that I could deal efficiently with unexpected events' and 'I can usually handle whatever comes my way' (Schwarzer and Jerusalem, 1995). The General Self-Efficacy Scale was found to have varying internal consistency with a Cronbach's alpha between .76 and .90, but still suggesting it has internal consistency (Schwarzer and Jerusalem, 1995). The questionnaire chosen to measure mindfulness was the trait Mindful Attention Awareness Scale (MAAS), validated for use by Brown and Ryan (2003). This is a 15-item scale that was designed to measure mindfulness as a core characteristic. The response format for the trait MAAS likert scores range from '*Almost Always*' (1) to '*Almost Never*' (6), a higher score suggests higher trait mindfulness. Finding the mean from all responses produces an overall score on the trait MAAS, and a high score represents higher trait mindfulness. The trait MAAS has previously been validated for use with students (Brown and Ryan, 2003), which is relevant as this study is using a student sample. Example of items from the trait MAAS are: 'I find it difficult to stay focused on what's happening in the present' and 'I rush through activities without being really attentive to them'. The trait MAAS has demonstrated high internal consistency levels generally with a Cronbach's alpha between .80 and .90 (Brown and Ryan, 2003). Thirdly, the 5-item Satisfaction With Life Scale (SWLS) by Diener et al. (1985) was used. The response format is a likert scale that ranges from '*Strongly disagree*' (1) to '*Strongly agree*' (7). The overall sum of scores on each item gives individuals overall self-efficacy score. Some benchmarks have been suggested for individual's life satisfaction scores, 5 to 9 representing '*Extremely dissatisfied*' and 31 to 35

representing '*Extremely satisfied*'. The internal consistency reported by Diener et al. (1985) was .87; therefore the scale has strong internal consistency. Some examples of the SWLS are: 'I am satisfied with my life' and 'In most ways my life is close to my ideal'. All three of the questionnaires to be used are public domain questionnaires; therefore author's permission is not required (see Appendix 7). However all authors have specified that the questionnaires must be referenced and they require acknowledgement when referring to their scales.

Procedure

Participants were recruited by responding to either a Facebook advertisement or a participation pool advertisement. These both included brief information about the study and what was required for them to participate. A link to the Qualtrics questionnaire was available through the advertisement, which participants had to click on and were redirected to the online questionnaire. Once on the Qualtrics questionnaire participants were required to read through the information sheet and then consent to the study and the use of their data by checking the necessary boxes. The next step was for participants to complete the questionnaires for mindfulness, life satisfaction and self-efficacy by selecting what they believed was the most appropriate response. Once all the questions were completed participants were provided with a debrief sheet. This informed them that their data will be kept anonymously and confidentially, with contact details should they have needed them. They then were required to provide an anonymous code to use if they wished to withdraw from the study at any point, as it was anonymous. Finally participants were thanked for their participation and the questionnaire entry was complete. All data was kept securely using SPSS files on the researchers password protected laptop.

Ethics

Ethical issues were taken into consideration within this study in line with British Psychological Society (BPS) guidelines. The participants used in the study were volunteers from the advertisements therefore no coercion was used to gather participants. Furthermore all the data from responses provided were kept confidential and remained anonymous throughout the study. Each response was given a number from 1 to 86 for data analysis. The data when on Qualtrics was kept secure, a username and password was required to access the data that only the researcher had. Similarly once the data set was

loaded onto SPSS it was kept on a password protected private laptop only the researcher could access. The data remains with the researcher until it is destroyed. The information sheet (see Appendix 2) provided to participants explained the study and their right to withdraw from the study at any point. They were also informed that their data will remain anonymous and be kept confidential. Participants were also required to check statements on the questionnaire to confirm they had given informed consent to their participation (see Appendix 1). Finally the participants were provided with a debrief sheet (see Appendix 5) which explained again their right to withdraw and anonymity. Aftercare contact details were also provided in case they needed support after the study to ensure they remained in the same physical and mental state as they were in before their participation. This study gained ethical approval through Manchester Metropolitan University (See Appendix 8).

Data Analysis

The total scores for each measure, self-efficacy, mindfulness and life satisfaction were produced using the guidelines provided (Schwarzer and Jerusalem, 1995; Brown and Ryan, 2003; Diener et al., 1985). Preliminary data was conducted to establish whether the data had passed the assumptions to enable parametric testing to be performed. From the preliminary analysis discussed in the results section below, the data was considered suitable for use with parametric testing. Pearson's product-moment correlations were produced to determine whether there were relationships between each of the predictor variables independently with the outcome variable. This was a suitable initial test as it directly responded to the hypotheses, which suggest a positive correlation. To build further on the correlational analysis a multiple regression was also used. Multiple regression analysis examines how much of the variance in the scores of the outcome variable can be explained by predictor variables (Mayers, 2013). As there are two predictor variables within this study, it was of interest to explore further how they both relate to life satisfaction as one model. Therefore within this study the researcher could see how much variance self-efficacy and mindfulness account for of life satisfaction.

Results

Table 1 shows scores for Cronbach's alpha reliability test for each of the measures used. Cronbach's alpha should be above .7 for the measures to be considered reliable. The analysis indicates that the chosen measures for self-efficacy, mindfulness and life satisfaction are reliable with Cronbach's alpha's significantly above .7.

Table 1
Scores on reliability for three measures

Measures	<i>M</i>	<i>(SD)</i>	<i>Number of items on scale</i>	<i>Cronbach's alpha [95% CI]</i>

Self-efficacy	30.22	(5.23)	10	.88 [.84, .92]
Mindfulness	3.51	(0.81)	15	.85 [.81, .90]
Life Satisfaction	23.66	(5.96)	5	.82 [.76, .88]

Note. $N = 86$. CI = Confidence Interval. Above Means and standard deviations for self-efficacy and life satisfaction are calculated from the individual's total scores across the items on the scale. Above Means and standard deviations for mindfulness are calculated from the individuals mean responses across the measure.

Response format for each item on the self-efficacy measures ranges from 1(not at all true) to 4 (exactly true), with 2 indicating 'hardly true' and 3 indicating 'moderately true'.

Response format for each item on the mindfulness measures ranges from 1 (almost always) to 6 (almost never), with 3 indicating 'somewhat frequently' and 4 indicating 'somewhat infrequently'.

Response format for each item on the life satisfaction measures ranges from 1 (strongly disagree) to 7 (strongly agree), with 4 indicating 'neither agree or disagree'.

The assumptions were also tested in preliminary analyses. An analysis of standard residuals was carried out, which showed no obvious outliers in the data (Std. Residual Min = -2.30, Std. Residual Max = 2.10). There were no cases that strongly affected the regression outcome assessed by Cook's distance (.11) and Mahalanobis distance (15.04). Although Mahalanobis distance value was at the higher end for a small sample size, it is at the threshold so no outliers were removed. Tests of the data showed that multicollinearity was not a concern, meeting the assumption of collinearity, (Self-efficacy, Tolerance = .90, VIF = 1.11; Mindfulness, Tolerance = .90, VIF = 1.11). The data met the assumption of independent errors (Durbin-Watson = 2.04). Tests of normality (Kolmogorov-Smirnov = .13, $p = .001$) indicated a violation of the assumption of normality. However the histogram for standardised residuals indicated that the data contained approximately normally distributed errors. The normal P-P plot of standardised residuals also suggested normality, points were close but not completely on the line. Also Q-Q plots and histograms suggested that the violation was not extreme. From preliminary analysis the data met most of the assumptions with the exception of normality, however the parametric test is robust and was still suitable for the analysis of this data.

Table 2
Pearson Correlation Matrix for self-efficacy, mindfulness and life satisfaction

	Life satisfaction	Self-efficacy	Mindfulness
Life satisfaction		.44***	.25*
Self-efficacy	.44***		.31**
Mindfulness	.25*	.31**	

Note. $N = 101$. Two-tailed probability. $*p < .05$. $**p < .01$.
 $***p < .001$.

Pearson product-moment correlation was used for analysis the results are shown in Table 2 for all variables. Self-efficacy and mindfulness significantly correlated with life satisfaction in the predicted direction. The strongest relationship indicated is between self-efficacy and life satisfaction, $r(84) = .44$, $p < .001$, with a medium effect size determined by Cohen's criteria (1988).

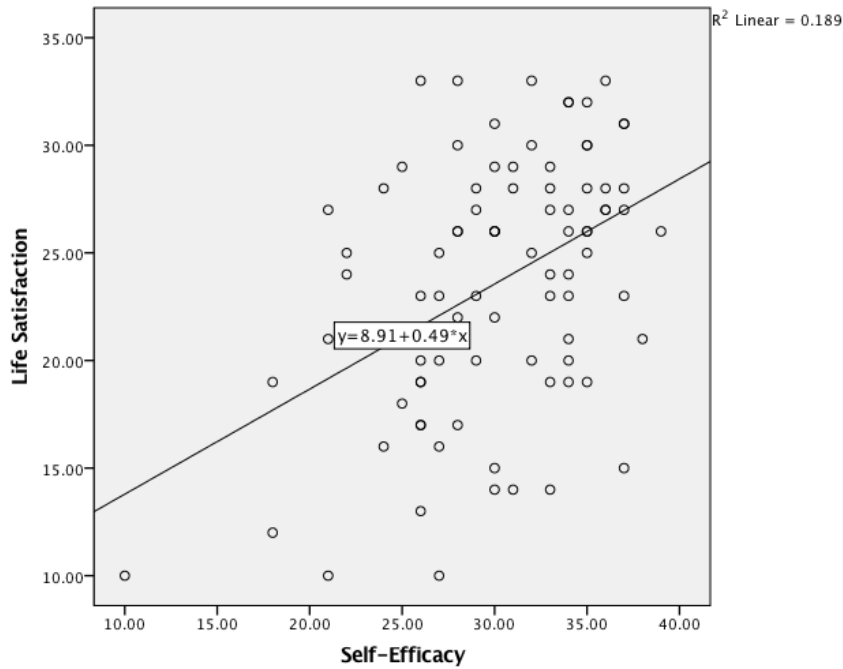


Figure 1. Scatterplot of correlation between self-efficacy and life satisfaction

Figure 1 shows a positive correlation previously mentioned between self-efficacy and life satisfaction, and that linearity is present.

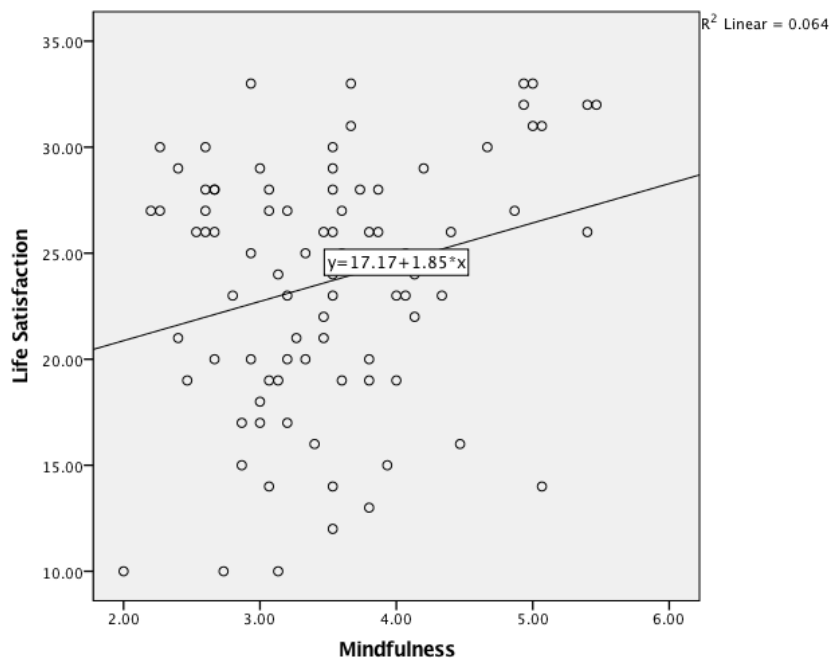


Figure 2. Scatterplot of correlation between mindfulness and life satisfaction

Figure 2 shows a positive correlation between mindfulness and life satisfaction, $r(84) = .25$, $p = .02$, which according to Cohen's criteria (1988) is a small effect.

Table 3

Summary of Multiple Regression Analysis for Self-efficacy and Mindfulness Predicting Life Satisfaction (N = 86)

Variable	<i>b</i>	Standard error of <i>b</i>	β	<i>t</i>	Sig. (<i>p</i>)
Constant	6.96	3.71		1.88	.064
Self-efficacy	.44	.12	.39	3.82	<.001
Mindfulness	.95	.75	.13	1.26	.212
R^2	.20				
Adjusted R^2	.19				

Note. *b* = unstandardized regression coefficient. β = standardized regression coefficient.

Regression coefficient *p* value from two-tailed *t* ($df = N-k-1$; where *k* = number of predictors).

Adjusted R^2 estimates variance in criterion that would be accounted for within target population sampled by this study.

Multiple regression analysis was conducted to see whether mindfulness and self-efficacy predicted life satisfaction and is shown in Table 3. The 'enter' method was used and found that mindfulness and self-efficacy accounted for 20% of the variance in life satisfaction ($F(2, 83) = 10.65$, $p < .001$, $R^2 = .20$, $R^2_{Adjusted} = .19$), this indicates a medium effect size by Cohen's conventions (1988). The analysis also shows in Table 3 that self-efficacy did significantly predict life satisfaction, however mindfulness did not significantly predict life

satisfaction. A simple regression was performed with self-efficacy and life satisfaction which showed a very small change in R^2 Adjusted = .18, compared to the multiple regression demonstrating that self-efficacy accounted for most of the variance in life satisfaction. This simple regression ($R = .44$) gave a very similar outcome to the Pearson's Correlation.

Discussion

Overall the present study found that self-efficacy and mindfulness are positively correlated with life satisfaction. Using a multiple regression it was found that self-efficacy significantly predicts life satisfaction but mindfulness was non significant. Using the initial correlation tests it was found that mindfulness did not increase the prediction value when in a model with self-efficacy. Therefore self-efficacy was found to have the stronger relationship and predictive power for life satisfaction.

The first hypothesis of this study was that self-efficacy would be positively correlated with life satisfaction based upon previous research which found a relationship between the two variables (Azizli et al., 2015). The findings support the hypothesis as a positive correlation was found between self-efficacy and life satisfaction. Also the findings support the previously discussed perspective of a top-down approach to life satisfaction as it has indicated that self-efficacy, an intrapersonal trait, predicts life satisfaction to some extent (Hsieh, 2003). The top-down approach to life satisfaction suggests that the structure within a person determines their perception of situations (Galinha and Pais-Ribeiro, 2011). Therefore self-efficacy may be a core belief system within an individual. On the other hand an individual's self-efficacy may be effected if contextual factors like stress or complex situations influence a person's self belief. The core structure involved in individual's self-efficacy beliefs could be altered due to particular situations, which may undermine their initial beliefs. Furthermore previous research (Luszczynska, Gutiérrez-Doña and Schwarzer, 2005) found that higher general self-efficacy scores predicted higher social life and job satisfaction. The present study builds on such previous findings, as it provides an overall life satisfaction across domains rather than specific domains. The findings from the present study support this association found in Azizli et al.'s (2015) research as the findings were replicated. Although within Azizli et al.'s (2015) research planning for the future was also measured and correlated with life satisfaction. However in the present study, and in previous research, self-efficacy had a stronger relationship (Azizli et al., 2015), which supports self-efficacy being a predictor of life satisfaction. Additionally this study can only be generalised to the student population, as that was the chosen sample. Therefore the ability to generalise is limited and cannot be applied to the whole population. However this study gains insight into a student's life satisfaction and what aspects may be beneficial. Self-efficacy was found to improve academic success (Hsieh, Sullivan and Guerra, 2007) and has been found in this study to positively predict life satisfaction. Perhaps an individual who possesses high self-efficacy has a different approach to education, which improves life satisfaction.

The second hypothesis for this study was that mindfulness would be positively correlated with life satisfaction. A positive correlation between mindfulness and life satisfaction was found. However mindfulness did not significantly predict life satisfaction. Mindfulness is concerned with being attentive to the present-moment, which may contradict previous research relating to planning for the future (Azizli et al., 2015; Bullis et al., 2014). Both mindfulness and planning for the future oppose each other in their foundations as one focuses on the present and the other the future. It is interesting that both of these constructs correlate with life satisfaction, as they represent opposing views. Research did previously indicate that self-evaluations, including self-efficacy, mediated an association between mindfulness and life satisfaction (Kong et al., 2014). However this present study does not add support to this finding, as mindfulness was not found to add strength to the model with self-efficacy predicting life satisfaction. Self-efficacy alone was found to have the strongest relationship and predictive power for life satisfaction. Although mindfulness had a weak correlation with life satisfaction, mindfulness and self-efficacy were correlated which supports a previous link found in research between the two traits (Greason and Cashwell, 2009; Oman et al., 2003 cited in Kong et al., 2014). Perhaps mindfulness was not found to be strongly associated to life satisfaction due to the nature of mindfulness as a trait. With mindfulness being a reasonably new concept, participants in the present study may be unaware of how mindful they are, as they may not have acknowledged whether or not they are attentive to the present moment.

Practical Application

Low levels of life satisfaction may predict mental health conditions like depression and other psychological disorders (Lewinsohn et al., 1991 cited in Proctor, Linley and Maltby, 2008). Therefore an application for this study is for self-efficacy to be considered and improved in individuals. If self-efficacy can be improved in an individual then, according to the findings of this study, their life satisfaction may also improve which could prevent future mental health issues. A further application for this study relates to present-moment awareness as an aspect of mindfulness, which was measured in this study. A significant correlation was found between mindfulness and life satisfaction that suggests the more mindful an individual is the higher their life satisfaction. Acceptance and commitment therapy is based upon mindfulness with an element of present-moment awareness (Hayes et al., 2006). Therefore the measure involving present-moment awareness in this study suggests that it increases life satisfaction and supports the positive outcome of the therapy. However due to the correlation being weak more research may be beneficial to further explore the relationship.

Limitations

One limitation of this study is the use of the Mindful Attention Awareness Scale (MAAS). The MAAS only tests for one of the many facets of mindfulness, present-moment awareness (Bullis et al., 2014). Mindfulness is

more complex than this one aspect, which may have contributed to the finding for mindfulness. Due to the complexity of mindfulness using more than one measure of mindfulness may have improved the overall mindfulness scores. Within science the concept of mindfulness is arguably a challenge to measure (Stolarski et al., 2015). There are many aspects and facets to mindfulness, with the measure in this study only addressing one facet this may be limiting. Also the cultural interpretation of mindfulness may vary and ethnicity and cultural differences were not measured in this study and therefore findings cannot be generalised across all cultures (Stolarski et al., 2015). Perhaps if more facets had been measured, there may have been a more accurate representation of the participant's scores for mindfulness.

Furthermore the data arguably may not have met all the assumptions for parametric data. The data was not normally distributed when using the Kolmogorov-Smirnov statistical test. However the Q-Q plots and histograms suggested that it was not an extreme violation, and the analysis was robust so parametric analysis was used. This violation of the assumptions may have impacted on the study and the analysis therefore this may be a possible limitation. A third limitation is the use of self-report measures in the study. All three measures used in this study were self-report as they were the most appropriate measures for this type of research. As self-report measures are difficult to avoid in the circumstances of this study it may be beneficial for future research to prevent retrospective reporting (Brown and Kasser, 2005). One way to prevent this would be to ask participants to report their views from a specific time frame, for example the last month (Brown and Kasser, 2005). A further limitation for self-report measures is social desirability bias, individuals may guess what is considered the most socially accepted answer or the answer the researcher is looking for (Coolican, 2014). Therefore this may have an effect on participant's scores and is difficult to prevent. Within this study the questions may have been less susceptible to this due to their nature, as any answer may be considered socially acceptable.

Future Research

Further research is required to explore the relationship between mindfulness and life satisfaction as a relationship was found in this study but it was not strong. Therefore further research with a larger sample may either support or contradict the findings to develop understanding of the association. It may also be interesting to explore different facets of mindfulness as this study only measured for one. This may give a more accurate score for mindfulness as a whole concept. Furthermore, as self-efficacy was found by previous research and the present study to have a relationship with life satisfaction (Azizli et al., 2015), future research may be beneficial to look at specific domain life satisfaction. Different domains of life satisfaction could be explored for example, home and work life, and tested for a relationship with self-efficacy. The relationships could then be compared with the relationship between overall life satisfaction and self-efficacy to see whether it is a true representation.

Summary

To summarise, the present study found a relationship between mindfulness and life satisfaction and a second relationship between self-efficacy and life satisfaction. Another finding was that self-efficacy significantly predicted life satisfaction and mindfulness did not. Self-efficacy was the strongest predictor of life satisfaction. This study supports the previous literature regarding the relationship between self-efficacy and life satisfaction. Future research could beneficially explore several specific domains for life satisfaction with self-efficacy and explore more facets of mindfulness. This study has built upon previous literature and adds support to the use of acceptance and commitment therapy.

Mayers, A. (2013). *Introduction to statistics and SPSS in psychology*. 1st ed. Harlow: Pearson Education.