An Investigatory Examination into
the Relationships between
Mindfulness, Self-Efficacy and
College Student’s Health Behaviours.

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**ABSTRACT**

The objective of the present study was to examine the relationships between mindfulness, self-efficacy and the health behaviours commonly seen in college students. 73 Participants were included (33 males and 40 females, mean age = 22.81 years, SD = 1.55) and these were extracted from a pool of first, second and third year psychology students who attend Dublin Business School, School of Arts, Dublin. Each participant was asked to complete a questionnaire which assessed their level of mindfulness, perceived general health, alcohol consumption, quality of sleep, level of physical activity and self-efficacy with regards to these health behaviours. The results indicated that alcohol consumption is related to mindfulness as assessed through the Five-Factor Mindfulness Questionnaire. The results also revealed an association between self-efficacy and the participant’s level of exercise. These results suggest that by increasing the level of mindfulness in students, alcohol use, in particular binge drinking behaviour can be reduced. Also, through self-efficacy, students can benefit from an increased confidence in their ability to maintain a regular exercise routine which can in turn create greater physical well-being and psychological functioning.
INTRODUCTION

The current study is an investigation into the effects of mindfulness and self-efficacy on college student’s health behaviours. The college years are a time when students make the transition from adolescence to adulthood. During this time many health issues can present themselves, especially when the students are newly introduced to the struggles and stresses of college life. Due to a chaotic schedule, involving all night study sessions and socializing, many students can get caught up in unhealthy lifestyles and partake in risky or even harmful health behaviours which can create problems for their health in later life. For many students these behaviours are known to be harmful and in many cases the person is aware how much damage the behaviour can potentially have on their minds and bodies. However, they proceed to involve themselves in behaviours such as binge drinking as they search for a coping mechanism to combat the stress accumulated from everyday college life.

In turn this often leads to the student having decreased quality of sleep and less sleeping hours overall, which can potentially be very damaging to a student’s well-being. In the meantime, exercise routines and physical activity as a whole, which would have been prominent during secondary level education, also declines, as the student fills their spare time with the negative health behaviours instead of positive ones. Therefore, the current study aims to investigate whether or not there is a relationship between the health activities of students in Ireland, and some psychological constructs such as mindfulness and self-efficacy, which could possibly be linked to determining if a student is going to partake in less or more of the mentioned health behaviours.

Mindfulness

Many theorists have developed concepts on how psychological processes in our psyche can influence our participation in risky and potentially dangerous health behaviours.
In particular, one concept which is becoming increasingly popular within the discipline of psychology is mindfulness. Mindfulness is a technique in which a person, non-judgementally, becomes intentionally aware of his or her thoughts and actions in the present moment (Kabat-Zinn, 2005). This involves bringing the mind to focus on what is happening right there and then. For example, a person can mindfully experience the sensation of water on their skin while they take a shower, or they can be mindfully aware of the sound of wind outside their window. In some respects this is a form of paying attention as attention is related to all of the various facets in which Mindfulness is made up of; these include non-judgment, non-reactivity, observation, awareness and describing. The idea of mindfulness first originated as the seventh element of the Noble Eightfold Path (Bhikkhu Bodhi, 1984) which plays a central role in Buddhism as a guide to mental rehabilitation and mind conditioning. According to Buddhist teachings, the practice of mindfulness is a precondition for developing insight and wisdom. It is an essential factor in the path to enlightenment, awakening and liberation.

Since the 1970’s, the practice of mindfulness, in a non-religious context, has been implemented into western society as a therapeutic application for the treatment of the chronically ill. Jon Kabat-Zinn was the first to use the concept of mindfulness in a psychological approach, in his development of the mindfulness based stress reduction programme at the University of Massachusetts. This led to an increased interest surrounding the practice of mindfulness, throughout the medical world. In recent years many psychiatrists and other health care professionals have been using the technique as a non-pharmacological way of dealing with depression, anxiety and addiction among many other illnesses. It is theorized that mindfulness based cognitive therapy (MBCT), a meditation based psychotherapeutic intervention designed to help reduce the risk of relapse of recurrent depression, effectively reduces the likelihood of relapse or recurrence of depressive symptoms (Ramel, Goldin, Carmona, McQuaid. 2004). With regards to the effects of MBCT
on anxiety, research provides evidence that MBCT significantly enhances well-being in non-clinical populations who are susceptible to experiencing anxiety in real life situations (Kaviani, Javaheri, and Hatami. 2011). In addition, mindfulness based stress reduction programmes offers successful relapse prevention to those in the early recovery stages of substance abuse and addiction (Vallejo and Amaro. 2009).

“A consciousness that is characterized by vividness and clarity, such as mindfulness, is in direct contrast to mindlessness, which is a state of automatic functioning that can be chronic for many individuals” (Brown and Ryan, 2003). Mindfulness is therefore important in disengaging an individual from their automatic thoughts, habits and unhealthy behaviours, creating greater well-being and psychological functioning for that person. This link between Mindfulness and greater functioning, both physically and psychologically, has been charted in recent times by many studies including Bowlin and Baer (2012). In their research, they revealed that mindfulness was positively correlated with physical well-being and also accounted for significant variance in psychological well-being after accounting for self-control. Another study which highlights this association was carried out by Zvolensky et al. (2006), who undertook a research were they investigated the role of mindfulness based attention in predicting a persons perceived health status and functioning. Results indicate that a greater level of mindfulness based attention is associated with perceptions of having better physical and psychological functioning among young adults.

Likewise, Bränström, Duncan and Moskowitz (2011) found that Mindfulness, in particular the subscales of acting with awareness and non-reactivity to inner-experiences, were strongly related to positive states of mind and perceived physical well-being. The results from these studies indicate that the construct of dispositional mindfulness can create a barrier against stress and other possible threats to an individual’s overall well-being. Thus, the intent
of the current study is to build on these findings by providing the same associations among an Irish student sample, with little to no experience with the practice of mindfulness.

**Alcohol**

The indication that we have an ability to observe our own inner thoughts, emotions and physical sensations without having to make changes to them or act on them in any way, can be instrumental in breaking habitual behaviour patterns that can be harmful to a person’s physiological or physical health. Students have a tendency to use maladaptive techniques as a form of avoidance of an undesirable emotion or situation. This commonly takes the form of an over consumption of alcohol at parties and social gatherings. Turning to substances such as alcohol is seen as a potential way of coping with feelings of been overwhelmed or stressed. Although Brewer et al. (2009), found no variances between the effectiveness of cognitive behavioural therapy and mindfulness based therapy when applied to individuals with alcohol use disorders. Their studies did imply that those who underwent mindfulness based therapy benefited from less stress as opposed to those who availed of the cognitive based therapy. As a result, mindfulness based therapies are often perceived as been more beneficial.

In addition certain facets of mindfulness have been found to be related to the magnitude of alcohol use. Greater amounts of the facet of mind/body awareness are strongly associated with higher alcohol intake among both male and female student populations (*Leigh and Neighbour, 2009*). Furthermore, a non-attachment to thoughts and feelings were related to less alcohol use (*Leigh and Neighbour, 2009*) and alcohol related consequences (*Fernandez, Wood, Stein and Rossi. 2010*) in males. This is in contrast to a study conducted by Bowen, Witkiewitz, Dillworth and Marlatt (2007), who examined a mindfulness meditation practice, called Vipassana, which emphasizes the acceptance of unwanted thoughts; findings revealed that there was a significant reduction in substance use among the
participants when compared to a control group. Such discrepancies in research findings have
made it difficult to gain an overall understanding of the extent of the relationship between
mindfulness and alcohol consumption. The present study therefore aims to produce some
clarity on the subject. However, with regards to the whole construct of mindfulness, a
positive relationship was exposed between mindfulness and frequent binge drinking
behaviour (Leigh, Bowen and Marlatt, 2005).

The inclusion of alcohol use, as a health behaviour, in this study is imperative due to
the socio-cultural aspect of alcohol use experienced in Irish college and university
environments. “Ireland continues to rank among the highest consumers of alcohol in the E.U.
We drink about 20% more than the average European” (Alcohol Action Ireland, 2011). Along
with the negative impacts on physical and mental health, alcohol related problems cost the
country an estimated three and a half billion a year (Alcohol Action Ireland, 2011). These
figures make it evident as to why there is such a need for a practice such as mindfulness
training to counteract the worsening influence alcohol is having on young people.

Sleep

Sleep deprivation or a general poor quality of sleep is another health behaviour which
can have detrimental effects on third level students. For young adults sleep is often the last
item on a long list of priorities including social activities and course work. Research shows
that one third of students take longer than thirty minutes to fall asleep at night, they wake
more than once nightly and report sleepiness during the day (Forquer, Camden, Gabriau and
Johnson, 2008). A study carried out by Galambos, Howard and Maggs (2011), on students in
their first year of university, found that there is poorer sleep quality and quantity during
months when general levels of stress was higher, for example, during exam periods. In
addition, better sleep was found to be obtained during summer months when students have
the opportunity to relax with friends (Galambos, Howard and Mills, 2011).

Later bedtimes and inconsistent wake times can disrupt the circadian rhythm. This is a
person’s 24-hour day/night cycle which influences their quantity and quality of sleep.
Stability of the circadian rhythm ensures the person gets better sleep, therefore, bed and wake
times should ideally be the same every day, including weekends. Failure to comply with the
needs of the circadian rhythm can lead to a student having lower academic performance
(Gilbert and Weaver, 2010), difficulties in performing day to day tasks such as driving
(ten Thoren and Gundel, 2003). It can cause the student to fall into a state of depression (Brooks,
Girgenti and Mills, 2009) and can also lead to behavioural problems.

Commonly, what keeps people awake during the night, or what disrupts their normal
sleeping pattern, is attributable to worries or stresses. This has links to certain facets of
Mindfulness such as non-judgment and observation. For example, those who are said to be
less mindful tend to judge themselves and their actions more frequently than a more mindful
person. This often results in poorer sleep quality due to the fact their mind is not relaxed and
is focused too much on distractions such as an argument they previously had, or an
expectation that something bad is going to happen. Therefore, mindfulness practice can aid
the person to let go of their distractions, concentrate more clearly and subsequently gain a
better night’s sleep. Self-observation is also linked to the concept of sleep, as it is crucial in
enabling a person to realise how much distractions and irritations are upsetting their quality
of sleep. Through self-observation a person is able to become intentionally aware of whatever
it is they are worried or stressed about. This in turn enables them to quickly resolve the
situation and as a result benefit from better sleep quality.
Mindfulness based movement courses can help to improve the sleep quality of college students as seen in previous studies by Caldwell and colleagues. Increases in mindfulness are directly related to better sleep quality as a result of lessons in Pilates and Taijiquan (Caldwell et al. 2010, 2011). Also, in stressed, but otherwise healthy individuals, mindfulness based stress reduction courses result in less troublesome sleep at night and less sleepiness during the day (Greeson, 2009). Greeson states that “when we don't know what to do with intrusive and persistent thoughts, the mind and body feels threatened. This leads to the “fight or flight” response which starts a flow of sleep stealing emotions such as anxiety and agitation”.

Therefore, improvements in mindfulness in the form of stress reduction courses can aid students in protecting themselves against stress related illnesses, and in turn help them to gain better sleep patterns.

**Physical Activity**

The pressure put upon students from college life often causes them to neglect sporting activities and exercise. As students struggle to meet the high expectations set by family members and try to juggle their new commitments, there tends to be little time left for physical activities. Maintaining adequate levels of vigorous exercise may help to prevent the onset of many health problems which are related to increases in negative health behaviours such as smoking, drinking large quantities of alcohol and eating too much fast food. Whether or not a person has been physically active in the past, it is now important that as they adjust to their new environment, they introduce some exercise to their daily schedule. Students who routinely engage in exercise such as, cycling, jogging or swimming are more likely to have better physical health than those who fail to exercise regularly (Jen-son Cheng, Ming-Ching Yang, Ping-Ho Ting Wan-Lin Chen and Yi-Yu Huang. 2011).
Subsequently, students tend to cease to participate in sporting activities and general exercise once they begin their college lives. A study by Downs and Ashton (2011) backs up this statement. They found that participants reported significantly less vigorous physical activity and organised sports participation in college when compared to when they were at secondary level education. This study also found that those who reported satisfactory levels of exercise had significantly better mental and physical health. In addition, regular exercisers are less likely to involve themselves in harmful health behaviours, for example, drinking heavily (Weinstock, 2010). This further, puts emphasis on the importance of physical activity to third level student’s well-being. As an adherence to exercise at a level necessary to achieve the benefits of good health is uncommon among students, an improved exercise adherence intervention programme such as mindfulness based movement courses are needed.

Mindfulness can also play a role in assisting the student to maintain their exercise regime once they motivate themselves to start one. Results from previous research verify that those who are successful in upholding their plans to engage in regular exercise also gain higher scores on measures of their mindfulness (Ulmer, Stetson and Salmon, 2010). This would suggest that having greater levels of mindfulness enables a person to make more balanced appraisals when responding to threats to their exercise regime, this in turn increases exercise maintenance which puts a stop to the onset of various illnesses.

**Key study**

More specific, research pertaining to the relationship between the construct of mindfulness and health behaviours which have damaging effects to students in particular was carried out by Roberts and Danoff-Burg (2010) on 553 students, 69.5% females and 30.5% males, recruited from the Psychology research pool in the University of Albany, United States. In their research, participants completed questionnaires assessing mindfulness,
perceived health, health behaviours, health-related activity restriction and stress. Findings revealed that facets of mindfulness including observing, describing, acting with awareness, non-judging of inner experience and non-reactivity to inner experience, are significantly related to sleep quality and physical activity. As a result those who scored higher on mindfulness also reported better perceived health and less related activity restriction. As well, they engaged in less harmful behaviours and instead practiced more beneficial ones. It was hypothesised that sleep quality would be negatively correlated with being mindful while mindfulness would correlate positively with more physical activity. The results of this study revealed that consistent with their hypothesis, poor sleep quality was significantly negatively correlated with mindfulness. Physical activity was also significantly associated with mindfulness, in the expected direction.

As the mentioned study effectively makes correlates between mindfulness and the health behaviours of students, it forms the basis for the current research which in turn aims to add to the findings of the Roberts and Danoff-Burg study. The current research also aims to overcome some of the restrictions which previous studies encountered. One of these restrictions or limitations was that participants were required to numerically estimate specific occurrences which transpired over the previous twelve months. This wide time frame could have possibly affected the participant’s ability to report accurate estimates. Similarly, it is possible that the statistical significance of some correlations may be the product of a large sample size (553). Or it may be skewed due to the fact that participants were predominantly female. The authors also advised that future research should be conducted outside of the United States, in order for conclusions to be made from more diverse geographic locations.

A limitation of the preceding research is also identified in an article by Paul Grossman (2008). He suggested a number of critical issues related to measuring mindfulness in psychosomatic and psychological research. These suggestions include the confusion of
mindfulness scale items among participants and significant differences between individuals’ actual levels of mindfulness and their self-ratings of mindfulness. Because this study is conducted with college students with generally little to no experience with the practice of mindfulness, their interpretation of the questionnaires items might be inaccurate. To counteract this restriction, the present research will include the variable of self-efficacy so it can be determined whether or not participants will be reporting accurate self-ratings of mindfulness.

**Self-efficacy**

The concept of self-efficacy originates from the social cognitive theory put forward by psychologist Albert Bandura. In this theory, a person’s attitudes, abilities, and cognitive skills comprise what is known as the self-system. This system plays a major role in how we behave in response to different situations. Self-efficacy plays an essential part of this self-system. According the Bandura, self-efficacy is “the belief in ones capabilities to organise and execute the courses of action required to manage prospective situations” (Bandura, 1995). In other words self-efficacy is a person’s belief in their ability to be successful in certain situations and in this case it is their belief in their ability to be able to make the right decision when faced with a dilemma regarding whether or not to involve themselves in a certain behaviour.

The majority of people in society have aspirations, goals and achievements they wish to make in their lives. Yet, when it comes to carrying out the actions needed to acquire these feats, many quickly come to realise that this is not so easy. According to Albert Bandura (1994), somebody who is said to have a strong sense of self-efficacy “often has the view that problematic tasks are challenges which must be mastered. They gain a profound interest in their activities and as a result are more committed to completing what they have started”.
addition, they tend to recover better from setbacks and are not easily intimidated by the prospect of renewing a challenging task. In contrast, “those with a weaker sense of self-efficacy tend to have negative feelings and thoughts towards challenging tasks” (Bandura, 1994). They quickly lose confidence and believe that difficult tasks are beyond their capabilities.

In this particular study, the context in which self-efficacy will be used will be to determine participant’s beliefs in their own capability to portray self-control in challenging situations. For example, participants will be asked to numerically estimate on a scale of one to six, how confident they are that they could refuse an alcoholic drink in a situation where they are at a party or if all their peers are drinking. Therefore the current study aims to evaluate the participant’s self-efficacy with regards to their alcohol consumption, quality of sleep and level of exercise.

**Importance/significance of this study**

The significance and subsequent importance of the present study therefore becomes evident. There is an abundance of illnesses and disorders which can result from poor health related choices and in particular, college students are exceptionally prone to partaking in such health behaviours. Thus, a psychological concept such as mindfulness or self-efficacy can potentially combat these harmful behaviours. Therefore, the aim of the present study is to investigate the influence a person’s level of mindfulness can have on their health behaviours. It also intends to build on previous research conducted in this area, on students, by including self-efficacy as a variable, and correlating it with the same health behaviours as are correlated with mindfulness. This will enable the current research to determine whether the participants self-reported levels of mindfulness are accurate or not.
Hypothesis

From studying previous research such as Roberts and Danoff-Burg (2010) and Zvolensky et al. (2006), and taking into account their results and suggested directions for future research, the main hypothesis for the current research study is as follows; it is hypothesised that mindfulness will be positively and significantly correlated with students health behaviours. In addition, in common with Leigh and Neighbour (2009), Fernandez, Wood, Stein and Rossi (2010), Leigh, Bowen and Marlatt (2005), there is a secondary hypothesis that an over consumption of alcohol will be negatively correlated with the construct of mindfulness. Poor sleep quality is also hypothesised to be negatively correlated with mindfulness as it was in the Caldwell et al. (2010, 2011), Greeson (2009) and Roberts and Danoff-Burg (2010) studies. Higher levels of physical activity and exercise are expected to be positively correlated with mindfulness. This is in common with previous research by Ulmer, Stetson and Salmon (2010) and Roberts and Danoff-Burg (2010). Mindfulness is also hypothesized to be positively correlated with perceived general health as it was in previous research by Zvolensky (2006), Bowlin and Baer (2012), and Bränström, Duncan and Moskowitz (2011). Furthermore, it is hypothesised that students self-efficacy with regards to their health behaviours will be positively correlated with the correlations between the same behaviours and mindfulness.
METHODODOLOGY

Participants

Participants were drafted from a pool of first, second, and third year Honours degree students who are currently studying Psychology in DBS (Dublin Business School), Dublin, Ireland. Participants included in the present study (N=73), were 54.8% female (n=40), and 45.2% male (n=33). The mean age was 22.81 years old (SD = 6.213). As a result of the items in the questionnaire assessing sensitive issues such as alcohol use, strictly only participants over the age of 18 were included in this study. The only other criterion required of participants was an adequate ability to read and respond to questions in English. Of the 73 students who completed the questionnaires no cases were excluded due to missing data. In addition, Outlier analysis did not identify any significant outliers in the data set and therefore the final sample consisted of 73 participants.

Materials

Materials in this study were comprised mainly of questionnaires and individual items from questionnaires. The Five Facet Mindfulness Questionnaire (FFMQ) is a 39 item self-report measure. This was first developed by Baer, Smith, Hopkins, Krietemeyer and Toney (2006), and it measures five different facets which are related to mindfulness. These are non-judgement, non-reactivity, observation, awareness and describing. Participants are asked to respond through a 5 point scale ranging from 0 = never or very rarely true, to 5 = very often or always true. The grades of these facets are then summed together, to generate an overall FFMQ score. A sample question from this questionnaire includes, “I perceive my feelings and emotions without having to react to them”.
The Pittsburgh Sleep Quality Index (Buysse, Reynolds, Monk, Berman, Kupfer, 1989) was utilised to evaluate respondents’ self-reports of their quality of sleep in an average night, and in general, their sleep patterns. The original questionnaire contains 10 items; however the last item does not contribute towards the overall scoring of the measure, so for that reason it was omitted. The remaining 9 items aim to cover 7 differing components of sleep. These include subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, the use of sleep medication and daytime dysfunction. Components are scored individually and then totalled together to gain an overall score. Participants who obtain an overall score of 5 or more are considered to have a poor quality of sleep. A sample of one the questions asked is, “During the past month, how long has it usually taken for you to fall asleep each night?”

Four items from the 2011 Youth Risk Behaviour Surveillance Survey are included. These measured the rate of the participant’s alcohol intake and their daily lifestyle activity/level of physical activity. An example of one of these items is, “During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is, within a couple of hours?”, responses to this question ranges from A = 0 days to G = 20 or more days. Physical activity was assessed through two questions, one being, “During the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day?” participants graded themselves between A = 0 days and H = 7 days.

The construct of Self-Efficacy, in the present study, was measured according to the guidelines set by Albert Bandura (2006), for constructing Self-Efficacy scales. From the guidelines, a number of scales were constructed to measure participants’ self-efficacy with regards to their health behaviours. A sample of one of the self-efficacy items used is, “A number of situations are described below that can make it hard to stick to an exercise routine. Please rate in each of the blanks in the column how certain you are that you can get yourself
to perform your exercise routine regularly”. Situations include, when I am feeling tired, when I am feeling anxious, when there are other interesting things to do and when there are visitors present. Participants then have to rate their level of confidence in their ability to maintain their exercise routine in each of the situations. This is done on a scale of 0 – 6 where 0 = cannot do at all, and 6 = highly certain can do.

Finally demographic items were used to determine the age of the participant and their sex. One item from the 36-item Short-Form General Health Survey (Cohen, Kamarck, Merlstein, 1983) was also used to gain the participants perception of their overall general health. In this item, the participants were asked “in general would you say your health is?” here, they responded with excellent, very good, good, fair or poor.

**Design**

This study used a between subjects, correlational, design. The predictor variable was the levels of mindfulness found in the sample of students who participated, along with their self-efficacy with regards to their health behaviours. In turn, their health behaviours took the position of the criterion variable. These include physical activity, alcohol consumption and quality of sleep.

**Procedure**

In advance of collecting data, the study was first submitted to the college’s institutional review board. Once approval was obtained to continue with the study, data was collected through a self-administered pen and paper based questionnaire (see appendix). Participants took part in the present study during the final twenty minutes of one of their scheduled modules in their psychology course. Before commencing, the sample was provided with oral instructions regarding how to correctly answer questions and about their rights and
entitlements (informed consent). In addition cover pages were attached with staples to the front of each questionnaire, informing participants of what exactly was required of them and how their information would be used. Participants were assured that the information they provided would be treated with the strictest of confidence and would be used solely for the purpose of research. The cover letter then concludes by informing participants about their right to withdraw themselves and their information from the study at any stage.

Participants were furthermore, asked not to write their name or any other markings on the paper, which would enable them to be identified. When the questionnaire was completed, participants were instructed to turn the questionnaire upside down and wait for the researcher to collect it. All data was then inputted onto a spread sheet in a statistical analysis database, known as SPSS-18.

Data Analysis

From SPSS-18, statistical analysis was run to determine the strength of the relationship between variables and the direction in which that relationship occurs. Bivariate correlations in the form of Pearson R tests were conducted between mindfulness and health behaviours, and subsequently, self-efficacy and the same health behaviours. In addition, a Cronbach’s Alpha test was carried out on both the overall score of health behaviours and the overall score of self-efficacy to determine whether or not they were internally consistent.
RESULTS

According to the descriptive statistics (Table 1), the mean level of mindfulness (M = 119.19, SD = 13.790) is consistent with the levels found in the mentioned key study. Mean levels of sleep quality (M = 6.53, SD = 3.587) are also consistent with previous findings and add to the suggestion that college students are among the most sleep deprived in society. Students also enjoy physical activity (M = 3.19, SD = 0.828) to the same level as in previous research, as well as having a similar level of daily lifestyle activity (M = 5.59, SD = 2.020). These findings are further emphasised by 45.2% of respondents reporting that they are physically active for at least 60 minutes per day, two to three days per week. In addition, for the purpose of this study, all physical activity related variables were computed together to generate an overall level of physical activity score, the mean for this is 8.97 and the standard deviation is 3.492.

The descriptive statistics regarding alcohol consumption among the Irish student sample reveals that 12.3% of students drink alcohol more than 10 days in a 30 day period. Furthermore, 27.4% claim they binge drink (five or more drinks within a few hours) once or twice a month, with a further 35.7% claiming they binge drink between 3 and 20 times a month. 2.7% stated they had drunk heavily more than 20 days in the last month. On average a student will drink at least one alcoholic drink between two and three times per month (M = 2.88, SD = 1.312) and will similarly binge drink between two and three days per month (M = 2.84, SD = 1.692). In comparison to results from the key study, the participants generally have a regular perception about their overall general health (M = 3.62, SD = .937), with 37.0% reporting good health and 31.5% reporting a fair level of health. Only 11% believed they had very good health and 20.5% at the other end of the spectrum, stating that their health was poor. Surprisingly, none of the participants reported to have excellent health.
Table 1.

Table of Descriptive Statistics.

<table>
<thead>
<tr>
<th></th>
<th>Total FFMQ Score</th>
<th>Overall Quality of Sleep</th>
<th>Enjoyment of Physical Activity</th>
<th>Daily Lifestyle Activity</th>
<th>Level of Physical Activity</th>
<th>Number of Days Drinking Alcohol</th>
<th>Number of Days Binge Drinking</th>
<th>Level of General Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>73</td>
<td>73</td>
<td>73</td>
<td>73</td>
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<td>73</td>
<td>73</td>
</tr>
<tr>
<td>M</td>
<td>119.19</td>
<td>6.53</td>
<td>3.19</td>
<td>5.59</td>
<td>8.97</td>
<td>2.88</td>
<td>2.84</td>
<td>3.62</td>
</tr>
<tr>
<td>SD</td>
<td>13.790</td>
<td>3.587</td>
<td>.828</td>
<td>2.020</td>
<td>3.492</td>
<td>1.312</td>
<td>1.692</td>
<td>.937</td>
</tr>
</tbody>
</table>

The results of the Cronbach’s Alpha tests, which assess internal consistency in items which propose to measure the same general construct, resulted in there being no suggested relationship between either the health behaviour variables (α = .094) or the self-efficacy variables (α = .431). Thus, the main hypothesis that mindfulness will be positively and significantly correlated with students health behaviours as a whole, is rejected along with the secondary hypothesis that self-efficacy, as a whole, will be positively correlated with the correlations between the same behaviours and mindfulness. Instead these variables were analysed on an individual basis.

Throughout the analysis, an alpha level of .05 was used for all statistical tests as a significance criterion. A Pearson r, bivariate correlation, was applied to assess the strength of the association between mindfulness and alcohol consumption. The results reveal that there is a weak, negative (r = -.231, p = .049), relationship between mindfulness and the health behaviour of alcohol consumption. A Pearson r correlation was also run to assess the strength of the relationship between mindfulness and the samples quality of sleep. The results indicated that there is no significant relationship (r = -.168, p = .155) between the two variables. A Pearson r correlation was applied for a third time to assess the strength of the
association between mindfulness and the participant’s level of physical activity. According to the results of this study, there is no correlation ($r = .153$, $p = .197$), between mindfulness and levels of physical activity. Finally, another Pearson $r$ correlation was run to assess the strength of the relationship between mindfulness and the participant’s perceived level of general health. The results showed that there is no significant relationship ($r = .113$, $p = .340$) between the two variables.

In order to evaluate the relationship between self-efficacy and the health behaviours, further correlations were administered. The strength of the relationship between self-efficacy, with regards to alcohol consumption, and the samples actual consumption of alcohol was assessed using a Pearson $r$ correlation. The results show that there is no significant association ($r = -.169$, $p = .153$), between alcohol consumption and the samples confidence in their ability to refuse a drink. Another Pearson $r$ correlation was carried out on the strength of the relationship between self-efficacy, with regards to sleep quality, and the samples actual quality of sleep. The results indicate that, again, there is no significant correlation ($r = .127$, $p = .286$), connecting the samples quality of sleep and their confidence in their ability to gain a good night’s sleep. Finally, a Pearson $r$ correlation was issued to assess the strength of the relationship between self-efficacy, with regards to physical activity, and the samples actual reported level of physical activity. The results found that there is a weak, positive ($r = .268$, $p = .022$), association between an individual’s level of physical activity and their confidence in their ability to maintain a regular exercise routine.
**DISCUSSION**

The purpose of this research was to identify whether or not there is a relationship between a student’s level of mindfulness and their participation in various health behaviours. It also aimed to verify these results by carrying out further correlations between the same health behaviours and the student’s self-efficacy. After conducting a series of Pearson r, bivariate correlations, a significant correlation was found between the variables of mindfulness and total alcohol consumption \((r = -.231, p = .049)\). As this correlation is of a negative nature, it means that it is an inverse relationship, so when the student sample’s level of mindfulness increases, be it through mindfulness based courses or through natural causes, it results in a decrease in the amount of alcohol consumed by the sample. No significant correlation was found between alcohol use and the sample’s confidence in their ability to refuse a drink in a testing situation \((r = -.169, p = .153)\). This may suggest that the student sample has little to no control over the amount of alcohol they drink which is very worrying considering the influence alcohol has on society.

These findings are in unification with the hypothesis stated before the tests were conducted. It was hypothesized that there would be an association between mindfulness and alcohol consumption. This hypothesis is further enhanced as the correlation also resulted in the predicted direction. However, the hypothesis that the mindfulness and alcohol use association would be significantly correlated with the relationship between self-efficacy and alcohol use, is not supported. The current study correspondingly attempted to clear up the discrepancies found in previous research regarding the effects mindfulness has on alcohol intake. Although the Bowen, Witkiewitz, Dillworth and Marlatt (2007) study revealed that alcohol use is reduced through mindfulness intervention courses such as Vipassana, which emphasizes the acceptance of unwanted thoughts and feelings, the current study, instead,
supports the findings in the Leigh and Neighbour (2009) study which states that the facet of non-attachment to thoughts and feelings are related to less alcohol use.

The results found in this study, also, add to the findings from the Leigh, Bowen and Marlatt study from 2005. Here, the research discovered a significant relationship between mindfulness and frequent binge drinking behaviour, which is supported by the results of the present study. However, the findings of the mentioned study resulted in a positive direction which is in direct contrast to the negative direction found in the present study. This may be due to the geographic location of which the opposing studies were carried out, as it is considered more culturally accepted for young people to drink in Ireland than it is in the United State. This is further reflected in the discrepancy of the legal drinking age between the two countries.

When comparing the descriptive statistics found in this study to those in the Roberts and Danoff-Burg study (2010), similarity between the mean averages with regards to alcohol consumption leads us to interpret that some students prefer to binge drink (M = 2.84, SD = 1.692) as opposed to social-ably drinking one or two drinks. Changes, therefore, need to be implemented to increase the mindfulness levels of Irish students, in order for them to refrain from drinking alcohol at a dangerous rate which can cause lasting damage to their health. Further research in this area should centre on how mindfulness based interventions can increase mindfulness and decrease alcohol consumption in the student population.

The results of the Pearson r correlation between mindfulness and the quality of sleep experienced by the sample revealed that there is no significant relationship between the two variables (r = -.168, p = .155). Likewise, there was no significant correlation found between the student’s quality of sleep and their self-efficacy with regards to their confidence in their ability to benefit from a good night’s sleep, throughout testing situations (r = .127, p = .286).
These findings are in contrast to those found in the Roberts and Danoff-Burg (2010) study, which discovered a significant relationship between the two variables. It also fails to support the indication set by previous research that mindfulness based interventions such as lessons in Pilates or Tijiquan (Caldwell et al. 2010, 2011), or stress reduction programs (Greeson, 2009), can effectively increase the quality of an individual’s sleep.

Sleep deprivation poses a serious threat to the well-being of an individual and a mean average of 6.53 suggests that Ireland is on par with other nations, as its students are among the most sleep deprived in contemporary society. Research has previously found that one third of students take longer than 30 minutes to fall asleep at night (Forquer, Camden, Gabriau and Johnson, 2008). This is supported with the responses found in the current study. 31 out of the 73 participants reported that on average they take 30 minutes or more to fall asleep at night, this equals to 42%. However, due to there being no correlation found between sleep quality and mindfulness, this high figure of sleeplessness might not be attributed to the sleep stealing emotions, such as anxiety and agitation, found in the facet of non-judgment to thoughts or feelings. Perhaps, the sleeplessness of the current sample is, instead, caused by the environment surrounding college life, where students leave sleep bottom of their list of priorities.

However, as the tests conducted in this study are correlation based, cause and effect cannot be determined. Therefore future research should concentrate on an experimental based study which can determine what is causing the circadian rhythm in students to be disturbed. Future research should also focus on a larger and more diverse sample as the small, psychology student; sample used in this study may not depict accurate estimates for the whole student population of Ireland. In conclusion, the hypothesis that there would be a negative correlation between mindfulness and a poor quality of sleep is not supported. As is
the assumption, that a significant correlation between self-efficacy and quality of sleep, would support these findings.

The results of the Pearson r correlation between mindfulness and Physical activity resulted in there being no significant correlation between the two variables (r = .153, p = .197). However, when the test was ran between the samples overall level of physical activity and its self-efficacy with regards to physical activity/exercise, a weak, positive correlation was discovered (r = .268, p = .022). The positive direction is as expected; this means that when mindfulness increases, so does the amount of exercise. These results, coupled with a mean average of 8.97 and standard deviation of 3.492, suggests that students have a high level of confidence in their ability to maintain a regular exercise routine during times when outside emotions and influences attempt to hinder their progress. Such hindrances would involve feelings of tiredness or anxiety, along with unexpected influences such as when there are visitors present or when there is simply more interesting things to do.

Hence, the hypothesized statement that higher levels of physical activity and exercise would be positively associated with mindfulness is no longer supported. As the association lies only between the samples self-efficacy and levels of exercise, and does not account for any significant association with mindfulness, the findings of previous research (Ulmer, Stetson and Salmon, 2010) is, also, not supported. The findings additionally fail to reinforce the results of the key study (Roberts and Danoff-Burg, 2010). Although the degree to which the sample rates their daily physical activity (M = 5.59, SD = 2.020) and their enjoyment of physical activity (M = 3.19, SD = .828) is in common with previous research (Roberts and Danoff-Burg, 2010), the large amount of respondents, in the relatively small current study, who reported partaking in vigorous physical activity for at least 60 minutes per day for two to three days per week (45.2%), could possibly have altered the results. Perhaps, this is due to the group of students tested in this study being more active than their average counterparts.
Further research on a larger sample can perhaps generate a more accurate estimate for the entire student population.

These results, however, should not be perceived negatively as a reasonably high level of physical activity is vital for the prevention of both physical and psychological illness. Where preceding research found that the majority of students reduce their amount of participation in sporting activities and other forms of exercise, when they make the transition from secondary to third level education (Downs and Ashton, 2011), the current study reveals that Irish students do not fall victim to this decline. It is not denied that this transition is a testing time for students; however, the sample tested in this study suggests that students are capable of balancing college life with a regular exercise routine. This is testament to the high emphasis placed on sporting activities in this country.

The results of the Pearson r correlation between mindfulness and the participant’s perceived level of health, reveals that there is no significant correlation between the two variables (r = .113, p = .340). 48% of respondents reported having good or very good health, and there was a mean average of 3.62 which is in comparison to previous research (Roberts and Danoff-Burg, 2010). However, as the Roberts and Danoff-Burg study found a positive correlation between the two variables, the present study cannot add support to their findings. The present study also opposes the findings of previous research which revealed that facets of mindfulness have a direct link to better physical and psychological functioning (Zvolensky et al. 2006), (Bowlin and Baer, 2012) and it promotes a better state of mind and better physical well-being (Bränström, Duncan and Moskowitz, 2011).

Prior to analysis being run, a hypothesis was constructed which predicted that mindfulness would be positively correlated with better perceived physical and psychological health. This hypothesis can, now, no longer be supported. Perhaps this is due to the sample
having little to no experience with mindfulness techniques. Therefore future research should centre on those who have completed a mindfulness based course such as mindfulness based cognitive therapy (MBCT). Kaviani, Javaheri and Hatami (2011) found that mindfulness, in fact, enhanced well-being in a non-clinical sample who reported to be prone to anxiety while encountering real life situations. Similar findings can possibly be found in a non-academic Irish sample.

In conclusion, although the significance and non-significance of the various correlations may be the product of a small sample size, and the study was carried out on a relatively standardized group of young Irish psychology students, with limited if any experience with the concept of mindfulness or mindfulness techniques, the results of this research both adds to the findings of previous research and lays a solid foundation for future research to be conducted on this topic. The inclusion of alcohol consumption as a harmful health behaviour was justified by the significant and negative association found between it and mindfulness. While the connection revealed between self-efficacy and physical activity unearthed an interesting discrepancy among Irish results when compared to the findings from previous research. Overall, the constructs of mindfulness and self-efficacy remain key pathways to discovering new innovative techniques to counteract the harmful health behaviours affecting students, along with promoting the beneficial ones such as exercise, which can result in enhanced physical well-being and psychological functioning.
REFERENCES


A Complete List of Items used in this Studies Questionnaire.

In general would you say your health is?

- Excellent
- Very good
- Good
- Fair
- Poor

Please rate each of the following statements using the scale provided. Write the number in the blank that best describes your own opinion of what is generally true for you.

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<th>4</th>
<th>5</th>
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<td>1</td>
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<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td></td>
<td>Never or very rarely true</td>
<td>rarely true</td>
<td>sometimes true</td>
<td>often true</td>
<td>very often or always true</td>
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</table>

____ 1. When I’m walking, I deliberately notice the sensations of my body moving.

____ 2. I’m good at finding words to describe my feelings.

____ 3. I criticize myself for having irrational or inappropriate emotions.

____ 4. I perceive my feelings and emotions without having to react to them.

____ 5. When I do things, my mind wanders off and I’m easily distracted.

____ 6. When I take a shower or bath, I stay alert to the sensations of water on my body.

____ 7. I can easily put my beliefs, opinions, and expectations into words.

____ 8. I don’t pay attention to what I’m doing because I’m daydreaming, worrying, or otherwise distracted.

____ 9. I watch my feelings without getting lost in them.

____ 10. I tell myself I shouldn’t be feeling the way I’m feeling.

____ 11. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.

____ 12. It’s hard for me to find the words to describe what I’m thinking.

____ 13. I am easily distracted.

____ 14. I believe some of my thoughts are abnormal or bad and I shouldn’t think that
15. I pay attention to sensations, such as the wind in my hair or sun on my face.
16. I have trouble thinking of the right words to express how I feel about things
17. I make judgments about whether my thoughts are good or bad.
18. I find it difficult to stay focused on what’s happening in the present.
19. When I have distressing thoughts or images, I “step back” and am aware of the thought or image without getting taken over by it.
20. I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.
21. In difficult situations, I can pause without immediately reacting.
22. When I have a sensation in my body, it’s difficult for me to describe it because I can’t find the right words.
23. It seems I am “running on automatic” without much awareness of what I’m doing.
24. When I have distressing thoughts or images, I feel calm soon after.
25. I tell myself that I shouldn’t be thinking the way I’m thinking.
26. I notice the smells and aromas of things.
27. Even when I’m feeling terribly upset, I can find a way to put it into words.
28. I rush through activities without being really attentive to them.
29. When I have distressing thoughts or images I am able just to notice them without reacting.
30. I think some of my emotions are bad or inappropriate and I shouldn’t feel them.
31. I notice visual elements in art or nature, such as colours, shapes, textures, or patterns of light and shadow.
32. My natural tendency is to put my experiences into words.
33. When I have distressing thoughts or images, I just notice them and let them go.
34. I do jobs or tasks automatically without being aware of what I’m doing.
35. When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.
36. I pay attention to how my emotions affect my thoughts and behaviour.
37. I can usually describe how I feel at the moment in considerable detail.
38. I find myself doing things without paying attention.
39. I disapprove of myself when I have irrational ideas.

During the past 30 days, on how many days did you have at least one drink of alcohol? Please tick one box only.....

A. 0 days
B. 1 or 2 days
C. 3 to 5 days
D. 6 to 9 days
E. 10 to 19 days
F. 20 to 29 days
G. All 30 days

During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is, within a couple of hours? Tick one box only.....

A. 0 days
B. 1 day
C. 2 days
D. 3 to 5 days
E. 6 to 9 days
F. 10 to 19 days
G. 20 or more days
During the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day? (Add up all the time you spent in any kind of physical activity that increased your heart rate and made you breathe hard some of the time.) Tick one box only…..

A. 0 days  
B. 1 day  
C. 2 days  
D. 3 days  
E. 4 days  
F. 5 days  
G. 6 days  
H. 7 days  

Please describe your daily lifestyle activity (i.e., how active you are) by picking any number from 1 to 10 in which 1 = very sedentary and 10 = very active. Your number is? __________

To what extent do you enjoy physical activity? (Tick one box.)

Not at all  
Slightly  
Moderately  
Greatly  

The following questions relate to your usual sleep habits during the past month only. Your answers should indicate the most accurate reply for the majority of days and nights in the past month. Please answer all questions.

1. During the past month, what time have you usually gone to bed at night? __________

2. During the past month, how long (in minutes) has it usually taken you to fall asleep each night? __________

3. During the past month, what time have you usually gotten up in the morning? __________

4. During the past month, how many hours of actual sleep did you get at night? (This may be different than the number of hours you spent in bed.) __________
5. During the past month, how often have you had trouble sleeping because you….

<table>
<thead>
<tr>
<th>Reason for Trouble Sleeping</th>
<th>Not during the past month</th>
<th>Less than once a week</th>
<th>Once or twice a week</th>
<th>Three or more times a week</th>
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<tr>
<td>Cannot get to sleep within 30 minutes</td>
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<td>Wake up in the middle of the night or early morning</td>
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<td>Have to get up to use the bathroom</td>
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<td>Cannot breath comfortably</td>
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<td>Cough or snore loudly</td>
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<tr>
<td>Feel too cold</td>
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<tr>
<td>Feel too hot</td>
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<tr>
<td>Have bad dreams</td>
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<tr>
<td>Have pain</td>
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6. During the past month, how often have you taken medicine to help you sleep (prescribed or “over the counter”)?  Tick one box…..

Not during the past month
Less than once a week
Once or twice a week
Three or more times a week

7. During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?  Tick one box…..

Not during the past month
Less than once a week
Once or twice a week
Three or more times a week

8. During the past month, how much of a problem has it been for you to keep up enough enthusiasm to get things done?  Tick one box…..

No problem at all
Only a very slight problem
Somewhat of a problem
A very big problem

9. During the past month, how would you rate your sleep quality overall?  Tick one box…..

Very good
Fairly good
Fairly bad
Very bad
A number of situations are described below that can make it hard to stick to an exercise routine. Please rate in each of the blanks in the column how certain you are that you can get yourself to perform your exercise routine regularly (three or more times a week).

*Rate your degree of confidence by recording a number from 0 to 6 using the scale given below:*  

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</thead>
<tbody>
<tr>
<td>Cannot do at all</td>
<td>Moderately can do</td>
<td>Highly certain can do</td>
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**Confidence (0 – 6)**

When I am feeling tired  
When I am feeling anxious  
When there are other interesting things to do  
When visitors are present  

The following questions describe situations where it would be hard to refuse an alcoholic drink. Please rate in the blanks provided, how certain you are that you could refuse an alcoholic drink in each of the situations.

*Rate your degree of assurance by recording a number from 0 – 6 where 0=I am very sure I would drink and 6=I am very sure I would NOT drink.*

**Confidence (0 – 6)**

When someone offers me a drink  
When my spouse/partner is drinking  
When my friends are drinking  
When I am at a pub or club  
When I am frustrated  
When I feel upset  
When I first arrive home  

The following questions describe situations where it would be considered to be difficult to gain a good night’s sleep. Please rate in the blanks provided, how certain you are that you would be able to maintain a good night’s sleep in each of the situations.

*Rate your degree of assurance by recording a number from 0 – 6 where 0=I am very sure I could get a good night’s sleep and 6=I am very sure I would NOT get a good night’s sleep*  

**Confidence (0 – 6)**

When I am feeling nervous or worried  
When I know I have to get up early  
When I am feeling stressed  
When I am after consuming alcohol  
When I am after playing sports  