



CASE REPORT

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Romantic Relationships, Mental Health and Academic Performance in Medical School – A Pilot Study

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Introduction

There has been limited research conducted into the direct impact of romantic relationships on students in higher education. For example, Braithwaite et al. [1], in their study, reported a positive effect, in that college students in committed relationships had better mental health. However, research conducted by Schmidt & Lockwood [2] found that although romantic relationships did not have an effect on grades, it was a hindrance to the students' engagement with their studies, as they were more likely to skip classes. Meehan & Negy's [3] research contrasted married and unmarried undergraduate students and found that being married had a negative influence on the students' ability to adapt to college life.

Very few studies have explored any form of social relationship amongst students at medical school and the potential impact on their well-being or their academic performance. For example, Ahmed et al.'s [4] research on medical students reported on the positive influence of the well-being and sociability aspects of emotional intelligence on their academic success. The research reported on here examines the 'real life' issue of social relationships as they impact on the trainee doctor, not in terms of the direct impact on their potential skills development relating to the patient-doctor relationship, but rather the impact on their academic studies and their mental well-being. This research observed specifically the influence of romantic relationships on the mental health and academic performance of medical students attending an international medical school. Are romantic relationships in medical school a help or a hindrance?

Stress and mental health issues in medical school

The main aim of a medical school is to create, dynamic, purposeful, competent physicians who have mastered the

skills of working with patients who are unwell either mentally or physically. However, the journey towards this goal is fraught with tension and a high level of stress. The unrelenting demand for academic prowess inevitably makes the medical student more prone to stress. There is a plethora of research across the globe into the levels of stress of medical students and the associated impact on their mental health. For example, Dyrbye et al. [5] conducted a systematic review of research into the mental distress of medical students attending universities in Canada and the USA. A British study conducted by Firth [6] had similar findings, reporting higher mean scores on Goldberg's *General Health Questionnaire* [7] than other groups within the general population, with over 30% presenting with psychological or emotional distress. In Germany, Kötter et al. [8] found that a vicious cycle of stress and poor performance was a regular feature in the life of a medical student.

High levels of stress amongst medical students are therefore evidenced as a global phenomenon. Reports from around the world have indicated that graduate and professional medical students report alarming rates of symptoms of depression, stress and substance use [9] [10-17]. Increased symptoms of depression have been associated with high levels of stress and low social support [18-21].

Whilst the literature review produced many articles on the impact of stress on the academic performance of medical students from across the United States of America, Europe, Asia and Australia only two studies were found that reported on stress and academic performance in Caribbean International Medical Schools [29,30].

Based on the relationship between stress, social support and symptoms of depression, social relationships and group work aimed at preventing depression have been useful methods for

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reducing the severity and frequency of symptoms in students [31-34] have explored academic performance and what they termed the 'quality of life' on medical students. The inference is that social connectedness is somehow beneficial to maintaining and/or recovering one's mental and emotional health.

Romantic relationships at university

The start of one's university career is when many students long for support not only from family members, but from their relationship partners to aid them in succeeding at university [3,35,36]. While the Caribbean medical schools are becoming one of the major offshore institutions where students obtain their medical degrees, one can agree that it is a substantial change in environment for some to adjust to. Research in to the role of social support in the academic performance of medical students has produced mixed results [37,38]. There are many different types of relationship that may benefit or hinder medical students' academic performance which has been researched in other parts of the world [39,40].

The assessment of the impact of romantic relationships on mental health and academic performance on medical students is an innovative area for exploration. In fact, the literature review found no empirical research had been done anywhere in the world on romantic relationships amongst medical students and only one study was found to look at the triple issue of relationships, mental health and academic performance [41]. Therefore, the link between romantic relationships, mental health and academic performance is not just innovative for Caribbean medical schools, but also within the global context. Consequently, the key purpose of this research project was to explore a largely underresearched area of relatively wide interest. The objective of this research was to examine whether being in a relationship and the quality of that relationship impacted on either the mental health and/or the academic performance of the students attending an international Caribbean medical school.

Method

Participants

This research was conducted at Windsor University School of Medicine (WUSOM) in St Kitts. There is a new intake of students every term/semester which means that the number of students from each ethnic group fluctuates. The students attending the school largely arrive from the United States of America, Canada, other parts of the Caribbean, India and Nigeria.

Procedure

The data was collected anonymously via an online survey. Two hundred and seventy-six students (276) were emailed a study-specific questionnaire.

The following variables were incorporated into the online survey:

Demographic information

- a) Sex
- b) Age (16-20, 21-25, 26-30, Above 30)
- c) Relationship Status (*single, in a relationship, engaged, married*)

- d) The length of the relationship (*weeks, months, years*)
- e) Programme being studied at WUSOM (*Pre-meds 1, 2 and 3, MD1-5, Clinical*)
- f) Potential level of support/stress provided by the relationship (whether or not their partner helped with their studies (*yes,no*); whether or not they argued as a couple (*never, rarely, often, very often*); whether their studies had been affected since being in the relationship (*my grades have remained the same, my grades have got better, my grades have got worse*); whether or not their concentration on their studies had been affected since being in the relationship) (*yes, no*)
- g) *The Couple's Satisfaction Index (4-item)(CSI-4)* (Funk & Rogge [35]) was used as a measure of the quality of the relationship. A higher score on this tool indicates a stronger, more satisfying relationship.
- h) *The General Health Questionnaire (12-item) (GHQ-12)* (Goldberg [7]) was used as a measure of the mental health of the participants. A higher score on this tool indicates a higher level of mental distress.
- i) Academic information (Grade range: *0-60%, 61-70%, 71-80%, 81-90% and 91-100%*; retakes of exams (*yes, no*)). Both of these variables were self-reported.

One hundred and twenty-one (44%) students completed the survey. The participants who were not in a relationship were automatically excluded from answering the questions that related to the quality of the relationship.

The statistical analyses were conducted in order to address research questions such as:

Is there a significant difference between the grades of those in a relationship, and those who are single? Is there a significant difference in the mental health of students who are in a relationship and those who are single? Is there a significant difference in the level of retakes that single students take compared to students who are in a relationship? For students who were in a relationship the analyses specifically examined whether or not the quality of the relationship influenced mental health, academic performance or the students' capacity and capability in relation to their study skills? All data collected met the APA standards and were analysed via *socscistatistics.com* and *astatsa.com*.

Results

For the majority of the statistical analyses, the participants were arranged in to two groups: those who had a partner i.e., *in a relationship, engaged* and *married* combined, and those who were single, to permit comparative analyses.

Statistical Analyses

Academic Performance

A Mann-Whitney *U*-test was conducted in order to examine whether there was a significant difference between the academic performance of those in a relationship and those who were single. The finding was that the participants that were in a relationship had significantly better grades than the students who were not in a relationship ($p = .047$ (two-tailed)).

In order to explore whether or not the sex of the participant was a confounding variable, the mean differences in the grades of male and female participants who were single or in a relationship was performed, and produced a significant result. Although the results of the one-way ANOVA did not produce a significant finding ($F(3,117) = 2.50; p=0.06$), the post hoc analysis using the Tukey range test, showed that there was a significant difference between the mean grades for males who were in a relationship in comparison to single males ($Q=3.82; p=.039$).

Mental health

The GHQ-12 was scored according to the following: *Not at all = 0; no more than usual/same as usual = 1; Rather less than/rather more than usual = 2; Much more/Much less than usual = 3*. Scores for each item was inputted as well as the overall score on the GHQ-12 which was labelled GHQ-TOT.

Figure 1 shows the mean GHQ-TOT for the participants grouped by grade range and whether or not the participant was in a relationship.

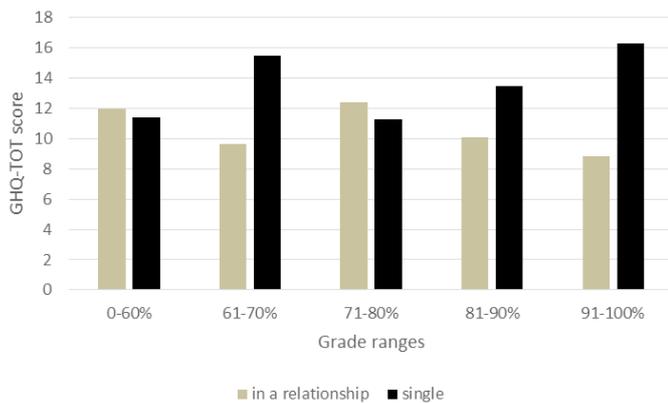


Figure 1: Mean GHQ-TOT scores for each grade range grouped according to whether or not the participant is in a relationship or single.

Figure 2 shows the number of participants who were in a relationship and single students with a GHQ-TOT score above or below the sample mean of 12.

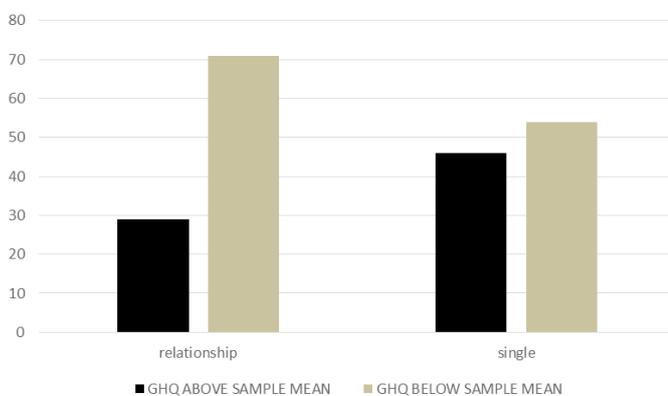


Figure 2: Proportions of participants in a relationship vs single with a GHQ-TOT score above the sample mean of 12 (%).

A *t*-test was conducted to examine whether there was a difference between the GHQ-TOT scores for those in a relationship and those who were not. The finding was that the participants in a relationship had significantly lower GHQ-TOT scores. ($t = -2.11; p .038$ (two-tailed)).

When comparisons of the GHQ-TOT means were made for male and female participants who were in a romantic relationship or single, the results were statistically significant ($F(3,117) = 3.83, p=.01$). A post hoc analysis showed that these findings were based on differences between the means for single males and all other groups. The Tukey range test produced the following *p* values presented below in Table 1 which indicates that male medical students who are unattached had significantly higher mental health concerns than their counterparts.

Table 1: Tukey range test for means of the GHQ-TOT for males and females who were single v in a relationship.

Sample 1	Sample 2	Q	<i>p</i>
Males in a relationship	Single males	4.46	<i>p</i> =.011
Single females	Single males	3.88	<i>p</i> =.035
Females in a relationship	Single males	4.05	<i>p</i> =.025

Quality of the relationship

The quality of the relationship was scored according to the marking criteria (Funk & Rogge, [35]). The score for each item was inputted as well as the overall score on the CSI-4 which was labelled CSI-TOT. A *Spearman’s Rho* analysis was conducted to examine any association between the quality of the relationship (CSI-TOT) and the grade levels which produced a non-significant finding.

Finally, correlational analyses were performed to examine whether the quality of the relationship (CSI-TOT) had any influence on the following outcomes: a) whether or not the partner was considered to be helpful to the participants’ studies b) whether or not the relationship affected the participant’s ability to concentrate on their studies and c) whether or not the participant’s grades had improved, worsened or stayed the same since they began the relationship.

The quality of the relationship was found to have a positive association with the participants’ grades over time ($r_s = 0.42, p = 0.00$ (two-tailed)). However, whether or not the partner was helpful with the participant’s studies was not associated with the participant’s perception of the quality of the relationship. Additional analysis to examine whether the partner’s proximity to the participant was contributing to this effect was also found to be non-significant.

Romantic relationships and mental health

A range of One-Way ANOVA was conducted to explore the impact of the quality of the relationship on the mental health of the students who were involved in a romantic relationship and whether or not the age and sex of the participant were confounding variables. This produced some significant findings. The results were statistically significant ($F(3,49) = 5.20, p=.003$).

A post hoc analysis showed that these findings were based on differences between the means for females in a relationship of low quality and all other groups. The Tukey range test produced the following p values in Table 2 which emphasized that the quality of the relationship impacts on the mental health of female students more than their counterparts.

Table 2: Tukey range test for means of the *GHQ-TOT* for males and females who were in a low v high quality relationship.

Sample 1	Sample 2	Q	p
Males in a high quality relationship	Females in a low quality relationship	4.73	p=.008
Males in a low quality relationship	Females in a low quality relationship	3.95	p=.036
Females in a high quality relationship	Females in a low quality relationship	3.96	p=.036

The impact of the quality of the romantic relationship on specific aspects of mental health was analysed by way of a series of Spearman's rho correlational analyses. The association between the quality of the relationship and the scores on the individual items on the *GHQ-12* produced mixed results. Table 3 shows the results for these analyses.

Table 3: Spearman's rho correlational analyses for scores on the individual items on the *GHQ-12* and the *CSI-TOT*.

Item on the <i>GHQ-12</i>	r_s	p (two-tailed)
Been able to concentrate on what you're doing?	$r_s = -0.34$	$p = 0.01^*$
Lost much sleep over worry?	$r_s = -0.25$	$p = 0.07$ n.s.
Felt you were playing a useful part in things?	$r_s = -0.25$	$p = 0.08$ n.s.
Felt capable of making decisions about things?	$r_s = -0.29$	$p = 0.03^*$
Felt constantly under strain?	$r_s = -0.23$	$p = 0.09$ n.s.
Felt you could not overcome your difficulties?	$r_s = -0.24$	$p = 0.09$ n.s.
Been able to enjoy your normal day to day activities?	$r_s = -0.26$	$p = 0.06$ n.s.
Been able to face up to your problems?	$r_s = -0.02$	$p = 0.86$ n.s.
Been feeling unhappy and depressed?	$r_s = -0.34$	$p = 0.01^*$
Been losing confidence in yourself?	$r_s = -0.38$	$p = 0.00^*$
Been thinking of yourself as a worthless person?	$r_s = -0.29$	$p = 0.03^*$
Been feeling reasonably happy, all things considered?	$r_s = -0.22$	$p = 0.12$ n.s.

Discussion

Academic performance

The results of this pilot study suggest that romantic relationships may have a positive effect on the academic performance of the students in this international medical school. When comparing the single students with the students who are in a relationship, the emerging findings support the idea that healthy social relationships produce better outcomes for students in medical school: students in a relationship academically outperformed students that were single. Furthermore, the students in a relationship were able to attain significantly higher grades despite not having practical support with their studies from their partners. In addition, the findings that there was an association between the quality of the relationship and the students' ability to concentrate more on their studies might suggest that perhaps being in a romantic relationship has a stabilising effect. This finding somewhat compliments the significant finding that the quality of the relationship is associated with the students' perception that their performance had improved since they

commenced their relationship. These outcomes may reflect findings from earlier research that adjustment is key to success in higher education.

The findings in relation to academic success contradict earlier research that found that romantic relationships are something of a distraction from one's university studies. When looking at the data in relation to retakes, 80% of the students in a relationship had retakes compared to 66% of the single students. The statistical analysis of this specific data was not significant. This finding suggests an intensity of the assessment processes of medical training, such that many of the students had to sit retakes irrespective of whether or not they were in a relationship and irrespective of all of the other variables. An alternative explanation could be that the students in a relationship exaggerated their grade average.

Mental health

Furthermore, students in a relationship had significantly better mental health ($m=10.81$) than single students ($m=13.52$) ($p<.05$, two-tailed). It is interesting to note that the students in a relationship with the highest-grade range also had the lowest *GHQ-TOT* score suggesting that the high performing students in a relationship had the best mental health in this pilot study. Further analyses with a larger sample would be able to explore whether this effect was influenced by the type of relationship. However, there were not enough students in each group for a meaningful statistical comparison to be made.

The inconsistent findings that social support may be protective of mental health problems was to some degree replicated here with the emerging findings that students in a relationship had significantly lower mental health problems if they were in a more satisfying relationship, but it only reached significance if their scores on the *GHQ-12* was compared to the whole sample mean rather than when they were compared other students in relationships.

Quality of the relationship

The quality of the relationship was found only to have a significant association with the following aspects of the *GHQ-12*: self-confidence and concentration levels, decision-making, feelings of depression, sadness and worthlessness. These results are consistent with findings such as Erol & Orth [43] which indicated a link between self-esteem and relationship satisfaction. These findings similarly suggest that relationship satisfaction is positively associated with self-confidence and self-worth as implied from the findings of the correlational analyses between the quality of the relationship and individual items on the *GHQ-12*.

Gender differences

The results in relation to the sex of the participant were intriguing as they suggest that being in a romantic relationship had a positive effect on males, but if the relationship was of a low quality, this impacted most negatively on the female students in this pilot study. This may suggest that the quality of the relationship is seen as a more important aspect of relationship satisfaction, and subsequently impacts on stress levels for female students more male students. A web-based review of available research showed very little research had been done in this area, and what was available was mainly

based on the behavior of adolescents. However, one study by del Giudice [44] was a systematic review of differences in the attachment behavior of males and females in romantic relationships revealed that males showed higher avoidance and lower anxiety than females. Overall, these findings suggest that a romantic relationship has a wider stabilizing effect on males than on females in this medical school.

Limitations of the study

This pilot study like most other innovative studies has some limitations. The most notable limitations were the sample size and the response rate. The by-product of the limited sample size is that it restricted the range of analyses that could be done. For example, the study was only able to look at romantic relationships in general rather than specific kinds of relationships like contrasting dating relationships with married students; and comparing heterosexual relationships with homosexual relationships. However, the significant findings indicate that this research can be used as a pilot study to inform future research. Future research should aim to capture a wider sample, perhaps including students from other international medical schools in the region, or indeed could potentially be replicated in other medical schools all over the world as appropriate as dating relationships are not common in all cultures and religions across the world. A wider sample may consequently allow for more detailed analyses of the full range of variables.

However, despite these limitations, the study produced some unexpected significant results in that it was able to show that romantic relationships may have a positive influence on improving and/or stabilizing the mental health and grades of medical students in this international medical school. The literature examining the effects of romantic relationships on academic achievement is currently quite limited, with the majority of the research focusing on adolescents (eg Brendgen *et al.* [45]). More research will need to be done on university students and also on medical students attending a wider array of medical schools.

Conclusion

The combined findings of this exploratory research, therefore suggests that ultimately, the successful trainee doctor must be educated to excel in their biomedical studies whilst enjoying healthy social relationships. The findings overall strongly suggest that romantic relationships can have a positive effect on academic performance, and possibly aids medical students to alleviate the stress from the deluge of academic demands of training in medicine through the social support that a romantic relationship might provide. This effect was more pronounced for male medical students than female medical students. In addition to this outcome, romantic relationships that are highly satisfying, may in fact be a boost to the mental health of the medical student. Therefore, rather than being a source of stress, romantic relationships can be a source of social and emotional support for medical students who are studying abroad. This in turn is likely to enhance their academic performance.

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