Stress Management with University Students in Canada, US, and Germany: A Multinational Health Education Analysis

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ABSTRACT
Research has demonstrated that high levels of stress are prevalent for students at post-secondary institutions. Supported by the cognitive stress theory, the consequences of stress can have a significant impact on mental and physical health. This article outlines the current state of stress among students in Canada, the United States, and Germany, as well as stress management programming in three universities. The application of the World Health Organization's health promoting university (HPU) framework was used to analyze and provide recommendations to current university stress management approaches. Although diversity in the settings of the various countries is evident, this coordinated approach recognized improvement in student health literacy as necessary to improve stress management efforts. Furthermore, the HPU framework is identified as a potentially useful tool to improve stress management strategies in university settings.
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Introduction

Most students in higher education settings have experienced stress (eustress or distress) during their university experience. Stress is particularly evident, but not limited to freshmen (Dyson & Renk, 2006; LaFountaine, Neisen, & Parsons, 2006), international and ethnic minorities (Hyun, Quinn, Madon, & Lustig, 2007; Kramer, Prufer-Kramer, Stock, & Tshiananga, 2004), and those students enrolled in graduate and advance studies (Mosley et al., 1994). In a wellness survey, first year U.S. college students (n=1007) scored least on stress management and nutrition subscales compared to other wellness indicators (LaFountaine et al., 2006). Similarly, a group of German college students also noted psychological stress to be a concern to their health (reviewed in Meier, Stock, & Kramer, 2007). The researchers attributed this finding to unhealthy habits, a demanding school environment, and a lack of stress management skills. According to Lazarus and Folkman's Cognitive Stress Theory, if a person appraises stress negatively and does not have proper coping skills to mediate stress, negative mental and physical health outcomes such as depression may surface (Lazarus & Folkman, 1984). Therefore, incorporating stress management training for college students is imperative to improve coping skills and reaction to stress stimulating circumstances. This manuscript will discuss an international perspective of the current disparities with stress management education in three universities (one each in Canada, the U.S., and Germany) and will use the Health Promoting University Framework to provide recommendations. The definition of stress we will use is that provided by Lazarus & Folkman (1984): "a relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and as endangering well-being" (p.19).

Although students generally accept the start of college life as an exciting time, they face various events that may cause stress (Dyson & Renk, 2006; Pritchard, Wilson, & Yamnitz, 2007). Specific challenges may include transition into adulthood, a new living environment, class demands, the need for acceptance, obtaining personal security (e.g., increasing self-esteem and comfort), and building a new social support network (Dyson & Renk, 2006). These challenges are also visible with students pursuing advanced degrees (Redwood & Pollak, 2007) as they seek and compete for training opportunities to prepare themselves for the professional community. Lack of knowledge surrounding how to cope with these transitions and challenges may result in limited adaptation to college life, and poor academic performance and decision-making. More importantly, these factors may eventually affect mental and physical health as described by the cognitive stress theory.

Canadian College Students

Research with students from over 40 campuses across Canada has shown that 30% of Canadian university students experience high levels of psychological stress including depression (Center for Addiction and Mental Health, 2004). At the age of

22, the average university student is in the age range that experiences the highest incidence of mental disorders (Canadian Mental Health Association, 2008). The consequences of high levels of stress include poor sleep, inadequate nutrition, difficulty concentrating, and heavy alcohol use (Health Canada, 2007). Almost one-third of Canadian students fall into the category of heavy alcohol users (Center for Addiction and Mental Health, 2004). In addition, suicide ranks as the second highest cause of death (after auto accidents) among university students (Simon Fraser University, 2008), which further emphasizes the importance of effective stress management.

U.S. College Students

In the United States, a national survey conducted by the American College Health Association (n=30,507) demonstrated that stress is the number one impediment to academic performance 32.9% (American College Health Association, 2007). Similar to Canada, suicide is the second cause of death among college students, with an annual rate of 6.5 per 100,000 (reviewed in Schwartz, 2006). Further analysis of this statistic identified a strong association with the lack of mental health services for college students and suicide risk (Schwartz, 2006). Research also demonstrates an increase in depression for college students with high levels of stress (Dyson & Renk, 2006; Hyun et al., 2007). Furthermore, the U.S. is known to be a melting pot of diverse cultures, a characteristic that applies to many of its universities as well. Of 17.5 million college students in 2005, 4% were from countries outside the United States (Hyun et al., 2007) and about 16% were ethnic minorities (Hussar & Bailey, 2007). These students are considered more vulnerable to stress-induced side effects due to language and cultural barriers, social isolation, financial hardships, and difficulties finding jobs due to documentation status (Dyrbye et al., 2007; Hyun et al., 2007).

German College Students

In Germany, stress is also a significant concern, with 42% of college students reporting experiencing stress (Sonntag, 2000). A 2005 study indicated that stress contributes to decreased health including poor eating and sleeping habits (30% women, 23% men), body pain, phobias (11% women, 6% men) and depression (20% women, 13% men) (Meier, Milz, & Krämer, 2007). Research also has shown that students with high levels of stress are at elevated risk of being involved in accidents. This research also demonstrates women to be at higher risk for stress than men (Meier, Milz et al., 2007).

As indicated previously, student stress is prevalent and the consequence of poor coping skills is evident. The following discussion suggests how the health promoting university framework can be applied in three countries to improve stress management for students. Recommendations are provided using a coordinated approach that involves students, professors, and other key stakeholders (Nutbeam, 2000).

The Health Promoting University Framework

Developed in England, the health promoting university (HPU) framework is a comprehensive and holistic approach to health promotion in the university setting (World Health Organization, 1998). The foundation of the framework was first developed from the Ottawa Charter, which indicates that health is not only the result of ensuring the prevention and treatment of medical illness, it arises as the result of socio-ecological factors (World Health Organization, 1986). These factors include social, political, economic, environmental, genetic and behavioral factors supporting a person to enable the decisions that will increase capacity for good health.

The HPU framework is designed to focus on equity and sustainability. The main objectives include the creation of healthy, supportive and sustainable working, social and physical environments. This process is enabled through amendments in policy, health focused training, and community development (World Health Organization, 1998). These objectives can be achieved only with commitment and communication amongst staff, students and senior management. By integrating health promotion into the institutional culture, processes and policies, the objectives are designed to support empowerment, social justice, cooperation, advocacy & participation (World Health Organization, 1998).

The goal of the health promoting university framework is to enable sustainable health conducive to living, working and learning environments in the university setting, as well as to improve the greater population health (World Health Organization, 1998). Furthermore, to meet the challenges set by the HPU framework, achievement of a high-level of health literacy is necessary (Nutbeam, 2000). Health literacy is defined as, "the degree to which people are able to access, understand, appraise, and communicate information to engage with the demands of different health contexts to promote and maintain health across the life-course" (Kwan, Nutbeam & Frankish, 2006). If applied comprehensively, as outlined above, the HPU framework is designed to produce many outcomes, with the ultimate goal of overall improved student health status. To foster health improvements,

reduction of health disparities is necessary. Thus, the following university case examples provide an overview of the current status of stress among students in Canada, U.S. and Germany to illustrate the current health disparities relating to stress management. Moreover, an overview of the ongoing programs at each respected university will be presented. The extent to which these universities are representative of others in their respective countries is unknown. However, their use as illustrations demonstrate examples of environmental variables that may favorably or unfavorably influence student stress levels, and the potential value of the Health Promoting University Framework.

Canadian Case Example - Simon Fraser University (SFU)

Stress at SFU

SFU consists of more than 25,000 students located in British Columbia, Canada (Simon Fraser University, 2008). It is ethnically heterogeneous with the predominant demographics being 43.9% White, 33.4% Chinese, and 6.1% South Asian (Association, 2007). In addition, 61% of students are female (Association, 2007). The data in Table 1 indicate that stress and its risk factors and consequences are significant challenges for SFU students (Association, 2007) and consistent with the national data previously noted.

Current Programming at SFU

There are various programs, resources, and services at SFU designed to promote health, including stress management. First, there is a peer program for students guided by staff peer health educators (former students, professors, and a psychologist) to facilitate health promotion including poster campaigns, workshops, and peer counseling (Simon Fraser University, 2008). The health educators meet weekly with the student peer leaders to provide support and guidance for their initiatives. The program also collaborates with Health and Counseling Services (HCS) on a small number of overlapping initiatives. As indicated by discussion with the program coordinator Dal Sohal, the program is popular and is at capacity at 80 students until the addition of extra staff. Currently, the staff and students who work in the health promotion areas at SFU have a large workload (D. Sohal, personal communication, April 16, 2008).

HCS (http://www.sfu.ca/about/) is another resource that is designed to help students deal with health-related concerns (Simon Fraser University, 2008). HCS staff members include a counselor, a social worker, a dietitian, and a coordinator. They offer counseling, health and wellness workshops (such as work-life balance and mindfulness, suicide prevention, managing anxiety), as well as a health e-newsletter, a stress and well-being tool, relaxation and stress reduction techniques, a work life balance tool, and videos to help reduce stress (Simon Fraser University, 2008). Discussion and email correspondence with Rosie Dhaliwal identified that in 2007, the average attendance of health workshops was 12 students, with a total attendance of 481 students over the 39 workshops (R.Dhaliwal, personal communication, May 2, 2008). HCS staff members also visit classes when requested to speak to students on various health topics such as wellness/stress management. Rosie Dhaliwal also indicated that the HCS staff members have attended at least 10 classrooms. In addition to the services offered, HCS develops a yearly report and evaluation of current programming to provide feedback on the

Table 1. Stress Related Data from the American College Health Assessment - National College Health Assessment (ACHA-NCHA), Fall 2007

Percentage*	Student Reported Measure (n=1,499)
41.0%	Stress got in the way of academic performance
17.5%	Depressed
12.5%	Anxiety disorder
18.1%	Anxiety or depression affected academic performance
91.4%	Felt overwhelmed with all they had to do in the last 12 months
26.4%	Felt overwhelmed with all they had to do more than 11 times per year
52.8%	Drank alcohol at least once a week
12.0%	Considered suicide in the last year
48.8%	In the last year, felt so depressed it was difficult to function
67.2%	Felt at times in the last year that things were hopeless
89.8%	Full time students
64.7%	Have paid employment while going to school
33.5%	Volunteer during the week

*Students can select more than one choice. (American College Health Association, 2007). Adapted from American College Health Association National College Health Assessment: SFU Executive Summary, Fall 2007.

upcoming years program (R.Dhaliwal, personal communication, May 2, 2008).

American Case Example- University of South Florida

Stress at USF

University of South Florida (USF) is a multi-campus metropolitan university with its main campus located in Tampa, Florida. The student population includes more than 45,000 students of which 34.6% (n=15,666) are ethnic minorities, 3.2% (n=1,470) are international students, and 59.6% (n=29,975) are females (University of South Florida, 2007). Specific ethnic/racial demographics include Whites (65.4%), Hispanics (11.7%), African Americans (11.5%), and Asian/Pacific Islanders (5.7%). Fifty percent of first year college students live on campus; however, the majority of USF students are commuters (approximately 87%). Although, statistics on the mental health of USF's students are not available, students do face stress such as adjusting to large campus environment and class demands. Furthermore, delivering stress management education for non-campus residents presents more challenges. These data alone highlight the need for stress management programs and education for students.

A comparable university, about a 100 miles east of USF, the University of Central Florida (Orlando, Florida) published data on the mental health of first year undergraduate students (23 men and 51 women; mean age 18.47 years, SD=.71 years) (Dyson & Renk, 2006). Findings showed that males and females experience similar levels of stress, depressive symptomatology, and coping strategies. Family life stress ($p<0.05$), college stress ($p<0.01$) and avoidant coping ($p<0.05$) were significant predictors of depressive symptoms. These findings are consistent with the national data, which report 18.9% of the college population experienced depression, a 56% increase of self-report depression in the last six years (American College Health Association, 2008). Of those who experienced depression, the national data also demonstrate that about 91.6% of students stated that they were overwhelmed by their workload.

As previously mentioned, the student population at USF represents diverse ethnic minorities or multiple countries. These students experience similar challenges of their White domestic counterparts, but may also encounter acculturation barriers, socio-cultural barriers, experience a lack of a social support network, and lastly, discrimination especially with international students. Some authorities have noted that college students are already vulnerable to stress, and students from ethnic minority groups are more susceptible both to stress and higher levels of stress (Negga, Applewhite, & Livingston, 2007). This study (n=344) compared African American students at a historically black college (HBC) to 165 white students from a predominantly white institution (PWI). Self-esteem and social support were significantly correlated with stress for all students, except those in the predominantly white institution. The top five reported sources of stress in this population were: death of a family member 82%; low grades 69%; time management (61%); boyfriend/girlfriend relationship issues (57%); and missed classes (55%).

Another study (n=3,121) which looked at the mental health of international students, reported no significant difference in prevalence of stress compared to domestic students; however, the severity of emotional or stress-related problems was significant (Hyun et al., 2007). This statistic could be confounded by cultural beliefs where expressing feelings or issues of mental health are not the cultural norm, such as with Asians or Hispanics. This study also found a lower knowledge of on-campus counseling services among international students (61%) compared to domestic students (78.6%). International students were significantly less likely than domestic students to receive information though the school's website and through other graduate students, but were more likely to obtain information through the school orientation program, brochures, and friends than domestic students. These findings suggest that cultural or linguistic barriers are present in the delivery of appropriate stress-management service information for international students.

Current Programming at USF

There are several programs offered by USF to improve or educate on stress management for college students. As do most universities, USF has a wellness program (http://www.sa.usf.edu/wellness/index.htm) and a counseling center (http://usfweb2.usf.edu/counsel/) that deliver stress management education through workshops, seminars, e-newsletters, monthly posters, posting on bulletin boards, and campus media (TV, radio, newspaper, website). Moreover, the counseling center provides individual counseling for students and physiological assessments. This program also has collaborated with other school programs to raise awareness of their services and to encourage USF's student health services to refer students to the counseling center as needed. The Department of Psychiatry and Behavioral Medicine service (http://www.sa.usf.edu/crisis/flashless/oncampusres.htm) offers another similar program by providing a free crisis phone number and by conducting a crisis evaluation for individuals who seek assistance.

Programs to promote stress management education include the USF Student Health Service – Health Promotion Program (http://shsweb.shs.usf.edu/HealthEd/Home.htm) and the Student Support Service (SSS) (http://www.ugs.usf.edu/sss/sss.htm). Both of these programs provide workshops and informational brochures. The main difference is that the SSS program is a six-week required experience specifically tailored for first year students who are first generation college student, of low income family status, disable, or whose grades or tests scores were lower than the average for the admission class. This program exposes students to college survivor seminars, academic support, and orientates the students of college facilities to promote a strong support system and to reduce stress induced by new college environment.

Support for ethnic minorities and international students include the McNair Scholars Program (http://www.grad.usf.edu/newsite/mcnair.asp) and the International Student and Scholar Services (http://global.usf.edu/isss/mission.html). These programs are not strictly stress management services; however, they indirectly prevent college-induced stress by providing support for students by financial support, peer networking, seminars, workshops, and academic counseling.

German Case Example- University of Cologne

Stress at German Universities

The University of Cologne includes six facilities with approximately 48,000 students, in which 12.5% of them are international students from 154 countries all over the world (University of Cologne, 2008). Similar to the U.S. case example, statistics relating to the topic of stress at the University of Cologne are unavailable. However, statistics of other German universities are available and; therefore, will be used to describe the current status of university students in Germany.

In Germany, research indicates that students experience stress because of the demand of their schoolwork (65%), feeling overwhelmed by the professional burden on their studies (61%), a lack of practical reference from the student's chosen courses (49%) and an inability to cope with the anonymity of university life (25%) (Sonntag, 2000). The organization of the current university system also contributes to stress. For example, current policies are promoting a shift in a program system towards international Bachelor's and Master's degree programming. Another example occurs with academic calendar planning, which is limited for first year students. Accordingly, many first-term students miss orientation, a likely contributing factor to stress at the beginning of their studies. Furthermore, presently, most German universities require students to pay tuition fees (Meier, Milz et al., 2007). Prior to 2006, attendance to any university in Germany involved only a social service contribution, but no tuition fees, as long as students attend their studies in a standard time period. Procuring the money for tuition is, therefore, a new problem for students in Germany, leading to more financial difficulties including working a part-time job on top of a demanding school schedule (Meier, Milz et al., 2007).

The leading causes of stress in both men and women include being overwhelmed by the burden of time and the demand of creating a good working strategy. However, women also identified disappointment about their studies as well as reduced family contact as contributing factors, which were not high concerns for men. Women also viewed strict class structure and poor perspective for employment after taking courses as a major stress inducing concern. Men referred to uncomfortable living situations and a lack of friends as contributors of stress. In regards to age, older students are less vulnerable to stress than those who attend university soon after high school (Bachmann, Berta, Eggli, & Hornung, 1999).

Current Programming at University of Cologne

There are a limited number of programs available for students at the University of Cologne. Current programs include academic advising, mental health counseling, and a sports program. Academic advising is available at all facilities to assist students with their academic schedule. This program typically takes place a week before the school term begins. Another student support program is offered by the Student Union of Cologne "Kölner Studentenwerk" (Kölner Studentenwerk, 2008). At the Student Union, psychological and social advice is offered; however, only three psychologists are available for counseling. This low ratio of professional to student is a significant limitation of available service for students particularly in a university whose population size is greater than 48,000 students. Additional programming offered through the "Kölner Studentenwerk" include public speaking training, stress management, and studies improvement workshops, some of which require additional payment from students.

Another possibility for students to gain stress relief is the sport program (Kölner Hochschulsport, 2008). This program includes access to massages, and promotion of meditation, and autogenic training for students. Most of these services do not require an additional cost to students; however, less than one

quarter of all University of Cologne students use these services (http://verwaltung.uni-koeln.de).

Another source of information for students is through the internet. However, there is only one webpage online with resources and information from the "Kölner Studentenwerk" (http://www.kstw.de), which is not clearly visible on the homepage of the University of Cologne. In addition, the information is only available in German, despite the 12.5% of international students for whom German is not the native language (University of Cologne, 2008).

Discussion

As previous studies have shown (Meier, Stock et al., 2007), engagement and autonomy of students in the decision-making, programming, and health education curriculum, is critical. This involvement is demonstrated through the peer programming that is offered at both SFU and USF. The six-week SSS program at USF is an example of integration into the curriculum. When comparing all three schools, University of Cologne has the least programming and also reports low rates of participation; this lack of peer involvement provides a barrier to improving students' health literacy surrounding available stress management resources. Although more programs are available at SFU and USF, the ratio of programs available to students to the school's population size is relatively low.

For the most part, students at SFU and USF have access to the multitude of programs and resources; however, the use of these programs appears to be low. For example, only about 2% of the student population attends the seminars and workshops at SFU, despite the reported existence of high stress in the student population. With students' busy schedules - often working and volunteering in addition to full time study - understanding the benefit of the programming and taking the time to understand its importance is likely to become a low priority. Thus, greater efforts to outreach students in an effective manner are warranted.

Because of the differing needs by gender, ethnicity, and national origin, health behavior change becomes increasingly complex. In particular, we are seeing health disparities in how students obtain stress management information. For the U.S. (Hyun et al., 2007), Canada (O'Brien, Symons, 2005) and Germany (http://www.kstw.de), findings revealed that students seek information first on websites, and secondly during school orientation. Yet, there is a disparity in the proportion of students who receive stress management education from these resources. International students comprise the largest group of users of these resources (Hyun et al., 2007). Despite efforts to offer students access to programming, if the material cannot be comprehended, the full capacity for health literacy (ability to appraise and communicate the knowledge) is not possible.

Recommendations

Certain aspects of a HPU currently exist within each school. However, to ensure a HPU campus, the following components have been identified as important elements for inclusion in the development of effective stress management programming:

- Include mandatory stress management programming within the curriculum for all first year students that begins at new student orientation. Include a section within this program that fosters discussion and dialogue with students outside the classroom (such as with peers and family).
- Expand/create a peer program. Include not only student peer support, but also collaboration with staff, faculty, and stakeholders regarding all programming and resources.
- Improve online resources to include high readability and accessibility to all students regardless of country of origin, ethnicity, or gender.
- Encourage all schools to participate in ACHA-NCHA to monitor progress and health status indicators of students. In addition, annual program evaluation should be included. Data garnered from this survey would assist development of programs and tracking of student health.
- For all programming, increase and ensure culturally, linguistically, and gender- sensitive material; include students from within the at risk groups to provide input for resource development.
- Increase financial support from stakeholders to allow for expansion of programming with additional staff and resources.

Limitations

There are several limitations of this analysis. First, the case examples are based on only one university per country. An expansion of this analysis to several universities within each country would be warranted to increase capacity to generalize the findings. Second, the data discussed in this manuscript pertains mostly to undergraduate university students. Third, aside from SFU, campus specific statistics were limited or non-existent; thus, national data were extrapolated in many circumstances for the university settings. Finally, findings from this study apply to stress management education only; however, it would also be beneficial

to apply the theory towards comprehensive health education.

Conclusions

All three universities have varying degrees of stress management programming and have some elements to support HPU campus. To further meet the goal of the HPU framework, the above recommendations were identified to enable students to deal with stress by achieving autonomy and critical health literacy levels, necessary for effective health behavior change (Leger, 2001). When these recommendations are applied effectively, it is expected that these strategies would also promote a culture that stimulates empowerment within the student population through participation and dialogue, choice, and discussion (World Health Organization, 1998). Having the support of key stakeholders in making changes in policies and providing sufficient funding is critical for program shifts. Lastly, additional research on multiple universities from each country would provide insight into an even more comprehensive analysis of stress management education for students.

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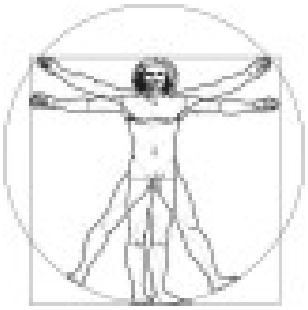

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