



Contract Cheating and Student Stress: Insights from a Canadian Community College

Corrine D. Ferguson¹ · Margaret A. Toye¹ · Sarah Elaine Eaton²

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Abstract

This article presents results from a self-report survey of misconduct behaviours and the stress students ($n=916$) experienced at one Canadian community college. Results showed that students engaged in a variety of contract cheating behaviours, and experienced a myriad of stressors both in and outside the college context, including traumatic life events. Those who engaged in commercial contract cheating and inappropriate sharing behaviours experienced significantly higher levels of stress. This result differed by type of stress suggesting that not all stress may lead to violation behaviour. Results also suggest that some students are exposed to more stress than others, which could put them at higher risk for engaging in contract cheating. Understanding contract cheating using the stress process framework draws our attention to how a student's location in the social institutions of work, family, and school, how their positions of advantage or disadvantage, and their involvement in social relationships may produce stress which we have found to be associated with contract cheating. Seeing stress in this way allows post-secondary institutions to address the structural conditions which lead to stress through the development of policy, procedure, and supports for students as they navigate academic integrity throughout their programs.

Keywords Contract cheating · Community college · Canada · Stress · Stress process model · Academic integrity · Academic dishonesty · Academic misconduct · Survey

Introduction

As post-secondary educators, we authors have seen various types of academic integrity violations. We have become increasingly aware of behaviours that go beyond “traditional cut-and-paste plagiarism” (Eaton, 2021, p. xv) and can be characterized as contract cheating, in a contemporary culture where sharing files—and sharing everything—is normal and facilitated by the internet. In many of our resulting conversations with learners, they share that they feel overwhelmed by the many responsibilities and deadlines they face as adult learners. We have internally experienced emotions regarding these cases, such as surprise,

✉ Corrine D. Ferguson
cferguson@bowvalleycollege.ca

¹ Bow Valley College, Calgary, AB, Canada

² Werklund School of Education, University of Calgary, Calgary, AB, Canada

frustration, indignation, and feeling personally attacked, all of which Eaton (2021) states occur when detecting plagiarism (p. 185).

Academic integrity violation behaviour is thus emotionally fraught for educators and learners. Hearing so much from learners about the numerous demands on their time and attention, we turned to the stress process model (Pearlin et al., 1981) to explore their experiences of contract cheating. There is relatively little research on academic integrity in the Canadian community college setting, and we set about to find out from learners themselves by conducting a study in which 916 learners engaged in a survey to share their experiences and attitudes towards contract cheating as well as the stressors that they experience in the multiple social roles that they inhabit.

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Literature Review

The term “contract cheating” was coined in 2006 by two computer scientists, Robert Clarke and Thomas Lancaster (Clarke & Lancaster, 2006). They proposed this term as an alternative to previous nomenclature such as “term paper mill” to include student outsourcing of academic work in both text-based and non-text work. Although commercial contract cheating can be traced back to the 1930s (Benjamin, 1939; Eaton et al., 2022b), consistent research on this topic has only emerged since Clarke and Lancaster (2006) coined the term. Since then, notable studies on contract cheating have been undertaken in Australia (Bretag et al., 2017, 2019a, b; Clare et al., 2017; Ellis et al., 2018; Harper et al., 2019; Curtis et al., 2021), the UK (Lancaster & Clarke, 2008; Clarke & Lancaster, 2013; Sivasubramaniam et al., 2016), Europe (Glendinning et al., 2017; Tauginienė & Jurkevičius, 2017; Bjelobaba, 2021) and Africa (Orim & Anirejuoritse, 2017). In addition, a few studies compare contract cheating across multiple countries (e.g., Newton & Lang, 2016; Awdry & Newton, 2019). In the researchers’ home country of Canada, empirical research on contract cheating has been limited (Eaton, 2022a). Small scale studies in which primary data were collected include those of Genereux and McLeod (1995), Eaton et al. (2019), Stoesz and Los (2019), and Thacker (2022).

Most of the studies noted above focus on the university context. In comparison, there is relatively little research on academic integrity and contract cheating in community colleges and other non-university higher education institutions (Bretag & Harper, 2020), though there is evidence to suggest that contract cheating is indeed an issue in community colleges (Genereux & McLeod, 1995; Hollis, 2018; Dowling, 2022).

The limited research exploring the differences between contract cheating in university and non-university higher education report comparable levels of self-reported cheating (Bretag et al., 2020). For example, in Australia, Bretag et al. (2020) reported the prevalence of contract cheating to be 7 percent and 6 percent for colleges and universities, respectively. However, the same researchers found significant differences in the use of professional academic writing services, with college students 12 times more likely than university students to use the services (Bretag et al., 2020). Similar studies have not been done to the best of our knowledge in Canada. The most comprehensive research on academic misconduct was completed by Christensen Hughes and McCabe (2006) who studied high school students and students at 11 universities (including one degree granting college) across Canada. They reported that 58% of students, when in high school, engaged in at least one instance of serious test cheating compared to 18% of undergraduates and 9% of graduate students

(Christiansen Hughes & McCabe, 2006). Stoesz and Los (2019) applied similar measures applied to high school students in one Canadian province, finding that 17.9% self-reported having submitted papers obtained from contract cheating services.

Stress, commonly reported as one reason for engaging in violation behaviour in academic integrity research (Newton, 2018), has been further explored from the perspectives of criminology (e.g., Smith et al., 2013; Rundle et al., 2019; Nagay & Groves, 2021) and psychology, with the theory of planned behaviour being a common framing (e.g., Tindall et al., 2021). Tindall et al. (2021) found negative emotion to be a significant predictor of student engagement in plagiarism and suggest that stress arising from assessment design may be considered a risk to academic integrity. Recent publications have also pointed to the importance of focusing on mental health and academic integrity (Eaton & Turner, 2020a).

Theoretical Framing

Pearlin et al.'s (1981) stress process model, rooted in the sociology of stress and mental health, is used to frame our analysis. The premise of the model is that “[p]ersonal problems can be and often are reflections of the structures and contexts in which people lead their lives” (Pearlin & Bierman, 2013, p. 337). We, therefore, set out to explore how contract cheating may be understood in relation to students’ stress arising from their location within systems of stratification, participation within social institutions, and social relationships. Understanding contract cheating using this framework can be used by post-secondary institutions toward the development of policy, procedure, and supports for students as they navigate academic integrity according to their positions of advantage or disadvantage within social structures.

Purpose

The purpose of this research was to address the need for more information about contract cheating in a non-university higher education setting (i.e., community college) in Canada. We extend research on contract cheating to further explore the stress college students experience while completing their programs.

The article is part of a larger study involving a survey of college students in the areas of knowledge of policies, perception of the teaching and learning environment, student norms, personal and social resources, stress, and academic integrity violation behaviour. The data presented in this paper respond to the following research questions:

- RQ1. How prevalent is contract cheating at the community college?
- RQ2. Do learners who engage in contract cheating report higher levels of stress?
- RQ3. What groups of learners experience higher stress?
- RQ4. Do learners who engage in contract cheating access personal and social resources which may help mitigate stress?

Methods

Data for this study were collected from students at one Canadian community college using an online self-report survey. Self-report surveys have been widely used to explore the prevalence of violation behaviour among students in higher education (Curtis et al., 2021). This

method, particularly when used to gather data about socially undesirable behaviours, typically yields low response rates (4–10%) (McCabe, 2005; Bretag et al., 2019a; Curtis et al., 2021) and a flaw with this method is the possibility of missing data issues (e.g., Tindall et al., 2021; Awdry & Ives, 2022). To help mitigate these issues, we focused on questionnaire design, protection of privacy and confidentiality, and engagement in the practice of students as partners in research.

Questionnaire

Construction of the survey instrument involved drawing on and modifying measures from previous research on academic integrity violation and measures from research on the stress process model. To assess content validity, the instrument was pre-tested following a modified cognitive interview approach (Hilton, 2017) originally developed by Willis (2005). The pretest team included academic integrity experts, student researchers, college instructors, and an applied researcher in higher education. Feedback from the pretest suggested the instrument aligned with the constructs we intended to measure. Changes to the wording of the questions occurred to include “behaviour” instead of “cheating” and to minimize the use of the specific term “contract cheating.” After incorporating the first round of feedback, the instrument was then created in Survey Monkey, an online survey tool, and pre-tested once more to ensure accuracy of transference and useability on a variety of devices (e.g., laptop, computer, cell phone). Scales were constructed for measures of more than three degrees. Where scales were used, we assessed their construct validity and examined whether items within the scales were consistent in their measurement of the same construct. All items in the various Likert scales loaded on one factor and met the rule of thumb of having a Cronbach’s alpha of greater than 0.80 (Boateng et al., 2018).

Privacy and Confidentiality

Ethics approval for this project was granted by the institution’s Research Ethics Board. To encourage participation and reduce anxiety students may have felt about disclosing violation behaviour, we focused on providing an environment in which students felt safe to share their experiences. This involved protecting their privacy and ensuring their information was kept confidential. Access to participant personal information was restricted and survey responses were not identifiable. Participants were reminded that their responses were anonymous at regular intervals throughout the survey. They had the option of not answering questions they did not want to answer. Participants could provide their email address at the end of the survey, collected in a separate database, to enter a draw for a \$50 CAD gift card. Access to this contact information was restricted and could not be connected to participant survey responses.

Students as Partners in Research

As the intent of the researchers was to use the data to advocate for the protection of *students* from commercial contract cheating services and toward the development of supports for *students*, we invited two students at the college to be partners in research. Students as Partners (SaP) is an emerging practice that seeks to “engage students and staff as collaborators on teaching and learning endeavours, establishing collegial working relationships

based on reciprocity, mutual respect, shared responsibility, and complementary contributions” (Marquis et al., 2017, p. 720). The practice of SaP is growing in academic integrity teaching and research (e.g., Lancaster, 2021, 2022; Slade, 2021). Researchers posited that student involvement in research would not only be invaluable in developing the data collection tool and recruitment materials, but also be integral in cultivating a safe environment for their peers to disclose behaviours. Therefore, two student researchers were the point of contact during the recruitment of participants and administration of the survey, including engagement in all communication about informed consent.

Procedure and Response

Holding campus-wide campaigns such as celebrating Academic Integrity Week and the International Centre for Academic Integrity (ICAI)’s International Day of Action Against Contract Cheating has been found to be positively associated with awareness of contract cheating (Khan et al., 2020). To capitalize on the potential increase in awareness, students were emailed a link to the survey immediately following Academic Integrity Week. Four reminder emails were sent during the three-week period the survey was open. A recruitment notice, including a link to a video created by student researchers, was published in student newsletters, learning management pages, and student association social media platforms.

A total of 6,271 survey invitations were sent using institutional email addresses for all students registered in post-secondary courses as of October 2021, ten of which could not be delivered. 916 learners took part in the survey representing a 14.63% response rate ($n=916/6,261$). Our response rate was higher than some previously reported rates, but we had missing data issues.

Following recommendations set out by Berchtold (2019) and Gorard (2020) we conducted a missing data analysis to explore the extent, type, location, and pattern of missing data in the survey using Missing Value Analysis Procedures in SPSS Version 28, including Little’s (1988) widely used test to determine if data were Missing Completely at Random (MCAR). We found that almost 58% of the 916 cases contained at least one missing value and 26.83% ($n=36,860/100,540$) of all values were missing. We drew 5 important conclusions from the missing data analysis: 1) attrition occurred across survey items; 2) participants were leaving the survey at key points; 3) there was a cumulative effect of disclosing violation behaviours; 4) there were missing data for specific question formats; and 5) Little’s (1988) test of Missing Completely at Random was significant, $\chi^2=25,448.737$, $DF=21,496$, $p<0.000$ and therefore, the null hypothesis was rejected suggesting the data were not missing at random.

Measures

Commercial Contract Cheating and Sharing Behaviour. We availed of the Academic Integrity Violations Inventory from the McCabe Academic Integrity Questionnaire (2003) (McCabe, 2003), a widely used measure in academic integrity research (e.g., Kasler et al., 2019; Harris et al., 2020) that has been used to assess academic integrity in the Canadian context (Jurdi et al., 2011; Stoesz & Los, 2019). The inventory was modified to reflect college norms and gender equity, adding items to reflect behaviours emerging as common today and documented in recent research (e.g., behaviours related to file sharing sites, e-proctoring) (Gonzalez-Gonzalez et al., 2020; Lancaster & Cotarlan, 2021). The final inventory consisted of forty items. Participants reported how often they engaged in the

behaviour (“Never” to “More than 10 times”), knowledge of violation (“Yes”, “No”), and the perceived seriousness of each behaviour (“Trivial” to “Serious”). Participants engaged in violation behaviour were also directed to follow-up questions including the transaction mode (Awdry, 2021).

Influenced by the conceptualizations of contract cheating set out by Bretag et al. (2019a) and Awdry (2021), we distinguished commercial contract cheating from sharing behaviours by source. Commercial contract cheating were behaviours that involved any type of engagement with assignment, test tutoring or homework services other than those provided by the college. This included assignment/exam completion services, internet paper or essay “mills”, online tutoring, and homework help websites (9 items). Sharing behaviours included any type of engagement in sharing assignment or test information with others known to the participant (i.e., another student, family, friend, partner, girlfriend/boyfriend). Sharing could be providing information or receiving information used to create an assignment or complete an exam (14 items).

Stress. Stress was conceptualized as events and circumstances that challenge the capacity to adapt or act as a barrier to desired ends (Aneshensel, 1992; Pearlin, 1983). To measure stress, we used a stressor inventory, an operationalization widely used in stress process research (Turner et al., 1995). Previous studies have suggested that reaction to stress may depend on salient role domains in social institutions in which the stressors occurred (Turner et al., 1995; Avison et al., 2007; Acharya et al., 2018). Therefore, we included indices for work stress, family stress, and school stress. Differences in response to discrete events compared to events that extend across time have also been found to be important (Turner et al., 1995; Avison et al., 2007) and so indices to represent both life events and chronic strains were constructed. Life events that happened to individuals personally and those that happened to people in their social network may invoke different stress reactions and have therefore been captured in this study (personal, network) (Thoits, 1983). We also measured role conflict (i.e., when participation in the school role is made more difficult by virtue of participation in the work or family role) (Greenhaus & Beutell, 1985), role strain (i.e., tension between roles connected to being a student) (Pearlin et al., 1981; Pearlin, 1989; Lee & Cohen, 2008), and traumatic life adversities (Turner & Lloyd, 1995).

Stressor checklists have been criticized for reflecting events and strains that may not accurately represent actual stressors experienced by participants (Anderson et al., 2021). To allow participants the ability to specify an event or strain they felt was stressful but was not on the checklist, we included an ‘other’ category where they could type in their response. Open-ended responses were then recoded into existing categories, or a new stressor was created when needed. The final stressor inventory contained 64 stressors (coded 1 or 0) (see Appendix 1). Total stressors were summed to create an index that ranged from 0–64. Items in the stressor inventory were combined to create indices based on role domain, duration, reference, interaction, and intensity. Low scores represented low stress and high scores represented high stress.

Personal and Social Resources. Personal and social resources may be drawn upon in reaction to stress with the condition of reducing the impact of stress (Aneshensel, 1992; Pearlin & Bierman, 2013). Personal resources include self-efficacy, mastery, and coping strategies while social resources include social support (family/friend, peer, instructor support).

Self-efficacy refers to confidence in the ability to demonstrate skills toward attaining an end goal (Bandura, 1977). Self-efficacy may be a significant resource in the context of contract cheating because, as Bandura (1986) suggested, “the types of outcomes people anticipate depend largely on their judgments of how well they will be able to perform in given situations” (p. 392). Previous research has called for outcome-specific measures of

self-efficacy (Bandura, 1986; Zimmerman, 2000). Therefore, we modified commonly used self-efficacy items (Zajacova et al., 2005) and created a measure of academic integrity self-efficacy to capture participant confidence in their ability to perform tasks that will lead them to complete their academic work with integrity. Participants were asked to rate themselves using a three-point scale, on their confidence in their ability to complete five tasks (see Fig. 2 for a list of tasks). Self-efficacy items were averaged to create a scale ranging from “Not Confident” to “Very Confident”. We used exploratory factor analysis applying principal components analysis to assess the dimensionality of the five items and to determine construct validity of the measure. A single factor emerged with an eigenvalue of 3.093, accounting for 61.87% of the variance with factor loadings from 0.767 to 0.821. The internal consistency of the scale (Cronbach’s alpha $\alpha=0.84$, $n=778$) falls within the preferred range (0.80 – 0.95) for psychometric quality of scales (Boateng et al., 2018, p.13).

Mastery refers to belief in the control over one’s life (Pearlin & Schooler, 1978). We created a domain-specific measure of mastery to capture participants sense of control over academic integrity by modifying the four-item measure commonly used in stress research (e.g., Badawy & Schieman, 2020). Participants were asked to rate their degree of agreement or disagreement on how much control they have over academic integrity reflected in four items (See Fig. 3 for a list of items). Mastery items were averaged to create a scale ranging from one “Strongly Disagree” to five “Strongly Agree”. As with self-efficacy, we assessed the validity and reliability of the scale. See Appendix 2 for a summary of eigenvalues, percentages of total variance for the single factor, range of factor loadings, and Cronbach’s alpha for all remaining scales reported in this section including the mastery scale.

Coping is the “cognitive and behavioral efforts to master, reduce, or tolerate the internal/or external demands that are created by the stressful transaction” (Folkman, 1985, p. 843). We used five items that measured avoidance, positive reinterpretation, beliefs, active, and venting types of coping (Mattlin et al., 1990). Participants were asked to rate the frequency (“I usually don’t do this at all”=1; “I usually do this a lot”=4) with which they used the five items to cope with stressful experiences.

Social support is “a social network’s provision of psychological and material resources intended to benefit an individual’s ability to cope with stress” (Cohen, 2004, p. 676). The perceived availability of functional social support is more important than actual support received and the importance of the source of social support is documented (Thoits, 2011). Therefore, we used measures that captured perceived availability of emotional, informational, and instrumental support provided by family/friends and peers. Emotional support refers to “demonstrations of love and caring, esteem and value, encouragement, and sympathy.” Informational assistance is the “provision of facts or advice that may help a person solve problems.” Instrumental support consists of “offering or supplying behavioral or material assistance with practical tasks or problems” (Thoits, 2011, p. 146).

Participants were asked to rate (“Not true” to “Certainly true”) three items that measured perceived availability of emotional, informational, and instrumental support from family/friends and three items for perceived availability of emotional, informational, and instrumental support provided by peers (“I can rely on my family/friends (college peers) to care for me, to listen, and talk to me about my private feelings and problems if needed”, “I can depend on my family/friends (college peers) to give me advice or information when I have a problem”, “My family/friends (college peers) can be relied on to offer or give me things to use that I need or help me with practical tasks”) (items drawn from Zimet et al., 1988, MSPSS and modified). Items were averaged to create measures of perceived family and friend support and perceived peer support.

Our measure of instructor support, influenced by Bretag et al.'s (2019a) measure of the perceived support of the teaching and learning environment, was constructed from six items (see Table 6) in which participants rated their level of agreement or disagreement with supportive behaviours of instructors. The ratings were then averaged to create a scale, which ranged between one "Strongly Disagree" and five "Strongly Agree."

Data Analysis

Of the 918 students who consented to participate, two did not respond to any questions and these cases were removed from the dataset. As not all 916 participants responded to all items in the survey, and missing data were not random, we analyzed available data per item instead of using deletion of missing values by case and report number of responses for each item and valid percentages in frequency tables. IBM SPSS Version 28 data analysis software was used to compute non-parametric tests including Mann–Whitney *U*, Kruskal–Wallis *H*, and Spearman's Rho correlations, as many of the variables in the survey were categorical, continuous variables were not normally distributed, and we had small number of responses in some categories. Chi-square tests of independence were used to test associations in instances where categorical variables had cell frequencies that exceeded five.

Results

Demographic Characteristics

Participants ranged in age from 17 to over 50 years and the mean age was 30.7 years ($Mdn=30$, $Mode=19$, $SD=9.37$). Over 45% of the sample were in the first term of their program (45.4%, $n=274/603$), and 30.3% of participants had completed 1 or 2 terms ($n=183/603$). Just over 29% (29.1%, $n=175/601$) self-identified as a racialized minority. Almost 45% (44.9%, $n=274/610$) were married or living with their partner, and 48.0% were never married ($n=293/610$). Over 37% reported caring for at least one child (37.1%, $n=222/598$) and the average number of children cared for was 2.03 ($n=222$). More than 60% of participants were working (61.6%, $n=233/607$) and 33.8% reported they worked between 11 and 20 h per week ($n=205/607$). See Table 1 for additional demographic characteristics of the sample and population for comparison.

RQ1. How Prevalent is Contract Cheating?

The prevalence of commercial contract cheating was 13.9% ($n=104/749$), while 13.8% ($n=92/667$) of participants had engaged in sharing behaviour. Table 2 reports the frequency of engagement, knowledge of violation, and perceived seriousness for each type of behaviour. Of the participants who reported engaging in commercial contract cheating, 42.3% reported "Using answers from an online tutoring site for an assignment" at least once, and 14.1% ($n=10/71$) engaged in this behaviour more than 3 times. Interestingly, only 56.3% rated the behaviour as serious cheating. Just over 22% used tutoring services for a test or exam. 5.7% reported "Submitting a paper obtained from a term paper "mill" or website" at

Table 1 Sample and Population Demographic Characteristics

	Sample		Population		
	%	<i>n</i>	%	<i>n</i>	
Age					
16–17	0.3	2	0.8	69	
18–21	19.6	118	25.6	2109	
22–24	12.1	73	15.0	1239	
25–29	17.6	106	17.0	1403	
30–34	17.3	104	13.9	1142	
35–39	15.4	93	11.6	956	
40–44	9.8	59	8.0	663	
45–49	4.5	27	4.9	403	
50+	3.5	21	3.1	259	
	<i>Mean</i>	<i>Median</i>	<i>N</i>	<i>Mean</i>	<i>Median</i>
	30.7	30.0	603	32.0	30.0
8243					
Gender					
Female	78.9	486	79.23	6524	
Male	17.4	107	20.7	1707	
Transgender/ Non-binary/non-conforming	1.5	9	<0.01	8	
Prefer not to say	2.3	14	<0.01	4	
Speak English at Home			First Language		
English	60.4	364	62.8	4714	
Other	39.6	239	37.2	2791	
Student Status					
Domestic	62.8	383	72.9	6001	
International	37.2	227	27.1	2226	
Full or Part-time					
Full-time (3 or more courses)	91.1	552	76.0	1526	
Part-time	8.9	54	24.0	481	
Grade Point Average (GPA)			<i>Mean</i>		<i>N</i>
0–0.49	3.0	17	3.07		8243
0.5–1.49	0.5	3			
1.50–2.49	12.6	72			
2.50–3.49	42.1	241			
3.50–4.00	41.9	240			

least once during their time at college. Almost 70% (68.3%, $n=43/63$) reported obtaining information from a commercial source was free, 7.9% ($n=5/63$) exchanged the information for course materials, 3.2% referred a friend, 3.2% provided personal information (e.g., login information, password), and 3.2% paid money for the information ($n=2/63$).

Over one-half (54.6%) of students who engaged in sharing reported “Sharing an assignment with another student, so they have an example to work from” at least once, and 14.8% ($n=13/88$) shared more than 3 times. Almost 45% (44.9%) of students reported “Working on an assignment with other students (in the same class or in a different class) when the instructor asked for individual work” at least once; 6.7% ($n=6/89$) of sharers reported

Table 2 Frequency of Engagement, Knowledge of Violation, and Serious Commercial Contract Cheating and Sharing by Type of Behaviour

	Frequency (%)		Knowledge and Seriousness (%)					
	n	At least once	n	Not a Violation		Serious		
				n	n			
Commercial Contract Cheating								
Using answers obtained from an online tutoring site for an assignment (e.g., Company 1, 2)	30	42.3	71	69	10.5	369	56.3	656
Using answers obtained from an online tutoring site during a test (e.g., Company 1, 2)	16	22.5	71	41	6.3	494	75.7	653
In a course requiring computer work, using code from an internet service, rather than writing your own	12	16.9	71	72	11.1	349	54.0	646
Using digital technology (e.g., another computer, mobile phone, smart watches, earpieces, etc.) to get help from an exam service found on the internet during a test or exam	12	16.9	71	43	6.6	509	77.8	654
Using text generating or academic writing software provided by a webservice to create parts of or an entire written assignment (e.g., Company 1, 2)	8	11.3	71	48	7.4	441	68.3	646
Providing your course work (e.g., assignments, exams, assessment instructions) to a file-sharing site (e.g., Company 1)	7	9.8	71	61	9.4	405	62.3	650
Submitting a paper obtained from the agency that helped you apply to college	5	7.0	71	64	10.0	418	65.0	643
Submitting a paper obtained in large part from a term paper "mill" or website	4	5.7	69	42	6.4	515	79.0	652
Arranging for someone you do not know to take a test for you (e.g., through a professional exam service offered on the internet)	3	4.2	70	38	5.9	575	88.7	648
Sharing Behaviour								
Sharing an assignment with another student, so they have an example to work from	48	54.6	88	117	18.5	270	42.6	634
Working on an assignment with other students (in the same class or in a different class) when the instructor asked for individual work	40	44.9	89	94	14.9	226	35.8	632
Getting questions and/or answers from someone you know who has already taken the test	18	20.2	89	38	6.0	409	64.8	631
Sharing information (e.g., pictures or files containing sources/answers) on social media such as group chats or Facebook Class	8	9.1	88	40	6.4	447	71.5	625
Copying from another student during a test with their knowledge	5	5.6	89	25	4.0	544	86.5	629
Using digital technology (e.g., another computer, mobile phone, smart watches, earpieces, etc.) to get help from someone you know (family, friend, partner, or girlfriend/boyfriend) during a test or examination	5	5.6	88	26	4.1	534	84.9	629
Submitting work done by someone else (friend, another student, family, partner/girlfriend, boyfriend)	5	5.6	88	28	4.5	536	85.5	627

Table 2 (continued)

	Frequency (%)		Knowledge and Seriousness (%)					
	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>		
	<i>At least once</i>	<i>n</i>	<i>Not a Violation</i>	<i>n</i>	<i>Serious</i>	<i>n</i>		
In a course requiring computer work, copying code written by other students, rather than writing your own	4	4.6	87	31	5.0	483	77.5	623
Using digital technology (e.g., another computer, mobile phone, smart watches, earpieces, etc.) to get help from another student during a test or examination	4	4.5	89	26	4.1	548	87.4	627
Submitting a paper copied from another student	3	3.5	86	26	4.2	574	92.1	623
Writing or providing a paper for another student	2	2.3	87	32	5.1	504	80.5	626
Providing a previously graded assignment to someone to submit as their own work	2	2.3	88	26	4.2	539	86.1	626
Taking an exam for someone you know (friend, another student, family)	1	1.1	87	27	4.3	571	91.4	625
Arranging for someone you know (friend, another student, family) to take an exam for you	1	1.1	88	25	4.0	576	92.2	625

doing this more than 10 times when at the college. Only 35.8% perceived this to be serious cheating and 14.9% felt it was not a violation.

Chi-square tests of independence were used to determine if there were significant associations between engagement in commercial contract cheating and sharing behaviour and demographic characteristics. Significant associations were found between engagement in violation behaviour and employment status, student status, and marital status. A significant association between commercial contract cheating and employment status was found, $\chi^2(1,606) = 4.27, p = 0.039$. About 73% (73.4%, $n = 47/64$) of those engaged in commercial contract cheating were working compared to 26.6% ($n = 17/64$) not working at the time of the survey. Participants who reported they engaged in sharing behaviours were more likely to be domestic students (79.3%, $n = 65/82$) and not married (73.2%, $n = 60/82$), than international (20.7%, $n = 17/82$) and married participants (26.8%, $n = 22/82$), [$\chi^2(1,607) = 10.65, p = 0.001$; $\chi^2(1,607) = 12.40, p < 0.001$]. No significant associations were found for racialized minority or language spoken at home and engagement in either commercial contract cheating ($\chi^2(1,600) = 0.32, p = 0.571$; $\chi^2(1,602) = 0.80, p = 0.372$) or sharing ($\chi^2(1,599) = 0.38, p = 0.539$; $\chi^2(1,600) = 3.49, p = 0.062$).

RQ2. Do Learners who Engage in Contract Cheating Report Higher Levels of Stress?

Table 3 summarizes the number of items, range, mean, and standard deviation for total stress and all five types of stress. The average number of stressors participants reported experiencing in the last 12 months was 7.51 ($n = 622$).

Table 4 lists the top twenty stressors reported by student participants. Over 61% (61.2%) of students indicated that COVID-19 was a stressor for them. As students were surveyed one and one-half years into the COVID-19 pandemic, we were not surprised that it was the top stressor reported. Other stressors reported in the top twenty were stressors in the school

Table 3 Summary Statistics for Stress by Type

	<i># Of Items</i>	<i>Range</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>N</i>
Total Stress	0–64	0–37	7.51	5.64	622
Role Domain					
Work	0–9	0–8	1.33	1.48	624
Family	0–20	0–9	1.13	1.50	624
School	0–17	0–15	3.12	2.66	624
Duration					
Life events	0–45	0–23	4.94	3.76	622
Chronic strains	0–15	0–11	1.86	1.74	624
Reference					
Personal	0–46	0–30	6.77	5.00	623
Network	0–17	0–7	0.75	1.21	623
Interaction					
School-related role conflict	0–4	0–4	0.86	1.16	624
School-related role strain	0–4	0–4	1.13	1.09	624
Intensity					
Traumatic life adversities	0–11	0–5	0.52	0.81	624

Table 4 Top Twenty Stressors Reported ($N=624$)

Stressors	%	<i>n</i>
COVID-19 pandemic	61.2	382
Increased academic workload	54.3	339
Worried about your overall performance in college	49.5	309
Not achieving the grades, you wanted to	38.3	239
Moved	35.4	221
Fear of not graduating	26.9	168
College conflicting with job	26.3	164
College conflicting with family life	26.0	162
Unable to find work	23.9	149
Major financial crisis	19.9	124
Change of job	18.6	116
Exam stress due to e-proctoring surveillance	17.5	109
Family life conflicting with college	17.3	108
Close relationship ended	16.7	104
Work conflicting with college	16.2	101
Economic recession	15.9	99
Trouble accessing a computer or other technology necessary for completing your assignments/exams	14.9	93
Worried about losing job	14.1	88
Trouble working with or getting along with college peers	13.9	87
Missed too many classes and have fallen behind in homework/assignments	13.9	87

domain (2, 6, 20) school-related role conflict (7, 8, 13, 15) and role strain (3, 4, 19). Over 35.4% of students reported that they had moved within the last year. Work and financial stressors (9, 10, 11, 16, 18) were also found in the top twenty reported. Worth noting is 109 participants (17.5%) indicated they experienced “Exam stress due to e-proctoring surveillance” and 14.0% had “Trouble accessing a computer or other technology necessary for completing assignments/exams” in the past year.

Mann–Whitney U tests were used to explore the differences in stress levels for those who engaged in and those who did not engage in violation behaviour. We found significant differences in stress between those who engaged in commercial contract cheating ($Mdn=7.5$) and those who did not ($Mdn=6.0$) ($U=15,378.5$, $z=-2.12$, $p=0.034$, $r=-0.08$) (See Fig. 1). Significant differences in stress levels existed between sharers ($Mdn=10.0$) and non-sharers ($Mdn=6.0$) ($U=15,035.5$, $z=-4.64$, $p=0.000$, $r=-0.19$).

In addition, Mann–Whitney U tests were used to assess differences in stress by role domain, duration, reference, interaction, and intensity between students who engaged in and those who did not engage in violation behaviour. Significant differences in stress varied by type of stress. Students who engaged in commercial contract cheating had significantly higher numbers of life events ($Mean\ rank=360.3$) compared to students who did not engage in this behaviour ($Mean\ rank=304.6$) ($U=14,998.5$, $z=-2.40$, $p=0.016$, $r=-0.10$) and reported more personal stressors ($Mdn=7.0$) than non-commercial contract cheaters ($Mdn=6.0$) ($U=15,266.0$, $z=-2.22$, $p=0.027$, $r=-0.09$). Two specific stressors from the top 20 reported were significantly associated with commercial outsourcing: “Change of job” [$\chi^2(1,622)=5.00$, $p=0.025$] and “Trouble getting along with college peers” [$\chi^2(1,622)=6.46$, $p=0.011$]. Almost 29% (28.8%, $n=19/66$) of those engaged in

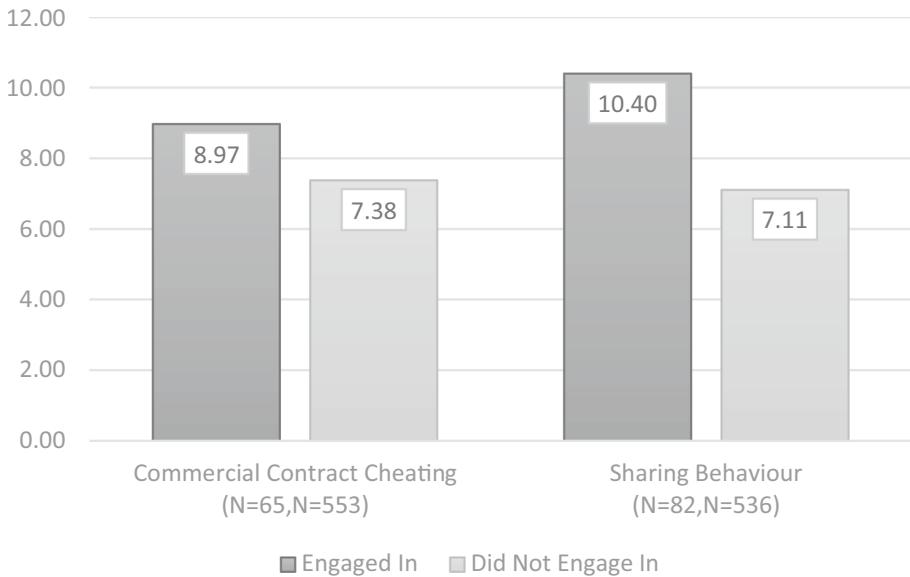


Fig. 1 Mean Number of Stressors by Engagement in Behaviour

commercial contract cheating reported “Change of job” and 24.2% ($n=16/66$) “Trouble getting along with college peers” as stressors that had occurred in the last 12 months compared to 17.4% ($n=97/556$) and 12.8% ($n=71/556$) of non-commercial contract cheaters.

Participants who engaged in sharing behaviour reported significantly more stressors for all types of stress except for work stress ($Mdn=1.0$) ($U=20,156.5$, $z=-1.34$, $p=0.182$, $r=-0.05$) and school-related role conflict ($Mdn=1.0$) ($U=19,423.0$, $z=-1.95$, $p=0.052$, $r=-0.08$) compared to non-sharers ($Mdn=1.0$; $Mdn=0.0$, respectively). Traumatic life adversities (e.g., death of a family member, discrimination, substance use) were significantly different between sharers ($Mdn=1.0$) and non-sharers ($Mdn=0.0$) ($U=17,015.0$, $z=-3.91$, $p=0.000$, $r=-0.16$). Two notable stressors from the top 20 list were significantly associated with sharing, “Exam stress due to e-proctoring surveillance” [$\chi^2(1,621)=8.96$, $p=0.003$] and “Family life conflicting with college” [$\chi^2(1,621)=11.28$, $p<0.001$]. Over 29% (29.3%, $n=24/82$) of those engaged in sharing reported “Exam stress due to e-proctoring surveillance” and 30.5% ($n=25/82$) “Family life conflicting with college” as stressors that had occurred in the last 12 months compared to 15.8% ($n=85/539$) and 15.4% ($n=83/539$) of non-sharers.

RQ3. What Groups of Learners Experience Higher Stress?

Table 5 presents the mean number of stressors by demographic characteristics. Statistically significant differences are highlighted ($*p<0.05$, $**p<0.001$) and vary by type of stress. Note that domestic participants reported significantly more stress than international participants for all types of stress except for school-related role strain ($Mdn=1.0$, $IQR=2.0$; $Mdn=1.0$, $IQR=2.0$) ($U=45,201.0$, $z=1.16$, $p=0.246$, $r=0.05$). Although, international students were more likely to report that they had “Moved” [$\chi^2(1,606)=76.87$, $p<0.001$], were “Unable to find work” [$\chi^2(1,607)=13.91$, $p<0.001$], and experienced “Involuntary separation from parents” [$\chi^2(1,607)=10.03$, $p=0.002$]. Students part-time in their studies ($Mdn=1.0$, $IQR=3.0$)

Table 5 Mean Number of Stressors Experienced by Student Status, Full/Part-Time, Gender, Employment Status, and Marital Status

	Student Status			Full/Part-Time		Gender		Employment Status		Marital Status	
	Inter-national	Domestic		Full-time	Part-time	Female	Other Gender	Working	Not Working	Married	Not Married
	(n=224)	(n=381)		(n=548)	(n=54)	(n=482)	(n=129)	(n=370)	(n=233)	(n=273)	(n=332)
Total Stress (0–64)	5.97	8.41**		7.48	8.43	8.06	7.36	7.66	7.40	6.59	8.31**
	(n=224)	(n=381)		(n=548)	(n=54)	(n=482)	(n=129)	(n=370)	(n=233)	(n=273)	(n=332)
Role Domain											
Work (0–9)	1.18	1.42*		1.32	1.61	1.29	1.50	1.53**	1.07	1.20	1.47*
	(n=224)	(n=383)		(n=550)	(n=54)	(n=484)	(n=129)	(n=372)	(n=233)	(n=274)	(n=333)
Family (0–20)	0.70	1.39**		1.09	1.76*	1.18*	0.93	1.12	1.17	1.17	1.11
	(n=224)	(n=383)		(n=550)	(n=54)	(n=484)	(n=129)	(n=372)	(n=233)	(n=274)	(n=333)
School (0–17)	2.44	3.50**		3.16	2.81	3.01	3.47*	3.09	3.20	2.57	3.57**
	(n=224)	(n=383)		(n=550)	(n=54)	(n=484)	(n=129)	(n=372)	(n=233)	(n=274)	(n=333)
Duration											
Life events (0–45)	4.04	5.46**		4.95	5.17	4.78	5.53*	4.96	4.99	4.21	5.57**
	(n=224)	(n=381)		(n=548)	(n=54)	(n=482)	(n=129)	(n=370)	(n=233)	(n=273)	(n=332)
Chronic strains (0–15)	1.55	2.06**		1.85	2.26	1.84	1.98	1.92	1.82	1.62	2.08**
	(n=224)	(n=383)		(n=550)	(n=54)	(n=484)	(n=129)	(n=372)	(n=233)	(n=274)	(n=333)
Reference											
Personal (0–46)	5.55	7.48**		6.80	7.04	6.62	7.33	6.96	6.60	5.82	7.60**
	(n=224)	(n=382)		(n=549)	(n=54)	(n=483)	(n=129)	(n=371)	(n=233)	(n=273)	(n=333)
Network (0–17)	0.42	0.94**		0.69	1.39**	0.75	0.74	0.72	0.80	0.77	0.73
	(n=224)	(n=382)		(n=549)	(n=54)	(n=483)	(n=129)	(n=371)	(n=233)	(n=274)	(n=332)
Interaction											
School-related role conflict (0–4)	0.48	1.07**		0.83	1.24*	0.89	0.71	1.01**	0.62	0.87	0.85
	(n=224)	(n=383)		(n=550)	(n=54)	(n=484)	(n=129)	(n=372)	(n=233)	(n=274)	(n=333)
School-related role strain (0–4)	1.04	1.19		1.15	0.98	1.08	1.32*	1.09	1.21	0.94	1.29**
	(n=224)	(n=383)		(n=550)	(n=54)	(n=484)	(n=129)	(n=372)	(n=233)	(n=274)	(n=333)
Intensity											
Traumatic life adversities (0–11)	0.38	0.59**		0.50	0.70	0.48	0.63	0.53	0.49	0.46	0.85
	(n=224)	(n=383)		(n=550)	(n=54)	(n=484)	(n=129)	(n=372)	(n=233)	(n=274)	(n=333)

Statistically significant differences are shown in bold type

* $p < 0.05$, ** $p < 0.001$

and females ($Mdn=1.0$) reported more family stress compared to those studying full-time ($Mdn=1.0$, $IQR=2.0$) and those not female ($Mdn=0.0$) ($U=17,932.0$, $z=2.67$, $p=0.007$, $r=0.11$; $U=34,670.0$, $z=2.06$, $p=0.040$, $r=0.08$). Students reporting a gender other than female had significantly more school stress ($Mdn=3.0$) and school-related role strain ($Mdn=1.0$, $Mean\ rank=336.2$) than female participants ($Mdn=2.0$; $Mdn=1.0$, $Mean\ rank=299.2$) ($U=27,690.0$, $z=-1.99$, $p=0.046$, $r=-0.08$; $U=27,453.5$, $z=-2.21$, $p=0.027$, $r=-0.09$).

Spearman's Rho correlation coefficients were calculated to test the association between number of stressors in each category, and age and number of children. Age was significantly correlated with all types of stressors except work stress [$r_s(600)=0.006$, $p=0.890$], school-related role conflict [$r_s(600)=0.053$, $p=0.193$], and traumatic life adversities [$r_s(600)=0.045$, $p=0.272$]. Age had the strongest association with school-related role strains [$r_s(600)=-0.169$, $p<0.001$]. Older students had lower levels of role strain. Number of children cared for at home was significantly associated with all types of stress except school-related role conflict [$r_s(600)=0.047$, $p=0.253$] and traumatic life adversities [$r_s(600)=0.057$, $p=0.166$]. Number of children cared for had the strongest association with network stress [$r_s(594)=0.232$, $p<0.001$]. Higher numbers of children were related to higher network stress.

Kruskal–Wallis H tests were used to assess differences for each type of stress by current GPA. No significant differences were found, e.g., total stress [$H(4)=5.47$, $p=0.242$]. Stress levels did differ by number of terms completed and work hours per week. Participants who completed 3–4 terms reported significantly more family stressors [$H(4)=14.53$, $p=0.006$; $U=11,404.0$, $z=-3.14$, $p=0.002$, $r=-0.16$; $Mdn=1.0$], network stressors [$H(4)=13.95$, $p=0.007$; $U=11,844.0$, $z=-2.81$, $p=0.005$, $r=-0.14$; $Mdn=1.0$], and school-related role conflict [$H(4)=18.17$, $p=0.001$; $U=10,788.0$, $z=-3.99$, $p<0.001$, $r=-0.21$; $Mdn=1.0$] than participants in their first term ($Mdn=0.0$, 0.0 , 0.0 , respectively). Participants who worked 21–30 h per week had higher number of stressors in the family ($Mdn=1.0$) [$H(4)=21.10$, $p<0.001$; $U=2966.0$, $z=-3.82$, $p<0.001$, $r=-0.24$] and school domains ($Mdn=4.0$) [$H(4)=10.81$, $p=0.029$; $U=3114.5$, $z=-3.22$, $p=0.001$, $r=-0.20$] than participants who worked fewer hours per week (11–20 h) ($Mdn=0.0$, 2.0).

RQ4. Do Learners who Engage in Contract Cheating Access Personal and Social Resources that may Help Mitigate Stress?

Students who engaged in commercial contract cheating reported significantly lower self-efficacy scores ($Mdn=2.4$) than students who did not engage in this behaviour ($Mdn=2.6$) ($U=38,912.5$, $z=3.77$, $p=0.000$, $r=0.14$). See Fig. 2 for percentage of students who reported they were “Very confident” in the five self-efficacy tasks by engagement in commercial contract cheating. There were no significant differences in self-efficacy scores between sharers ($Mdn=2.8$) and non-sharers ($Mdn=2.6$) ($U=24,905.5$, $z=-0.60$, $p=0.551$, $r=-0.02$).

Self-efficacy had a significant negative association with total stress ($r_s(615)=-0.118$, $p=0.003$). High levels of stress were associated with lower levels of self-efficacy. This was particularly true for school-related role strain where the association was strongest ($r_s(617)=-0.152$, $p<0.001$).

Chi-square tests of independence revealed participants' self-identification as a racialized minority and gender were related to specific items of self-efficacy. Those self-identifying as racial minority were less confident in their ability to cite and reference sources used in a written assignment [$\chi^2(2,600)=10.61$, $p=0.005$] and researching for a paper [$\chi^2(2,579)=9.71$,

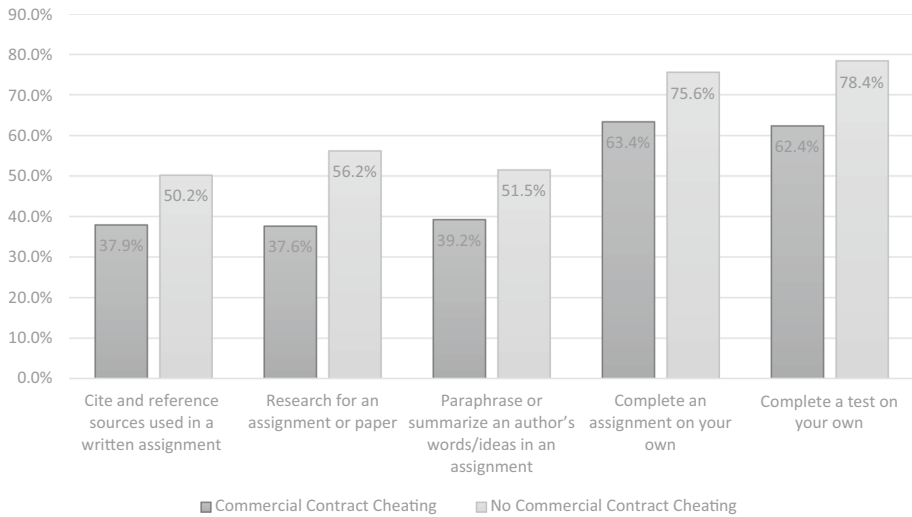


Fig. 2 Percentage of Participants Reporting “Very Confident” in Five Items of Self-Efficacy by Engagement in Commercial Contract Cheating

$p=0.008$] than non-racial minorities. Females were more confident completing a test on their own [$\chi^2(2,614)=6.27, p=0.004$] compared to other genders.

Kruskal–Wallis H tests indicated significant differences in self-efficacy between categories for current GPA [$H(4)=48.82, p=0.000$]. Pairwise comparison using Mann–Whitney U tests (correcting for Type 1 error using the Bonferroni adjustment) suggested that participants in the highest GPA category (3.50–4.00) ($Mdn=2.8$) had higher self-efficacy scores than those with lower GPA’s (1.50–2.49) ($Mdn=2.4$) ($U=4871.0, z=-5.75, p<0.001, r=-0.33$).

Students who engaged in commercial contract cheating reported significantly lower mastery scores ($Mdn=4.0$) than students who did not engage in this behaviour ($Mdn=4.3$) ($U=36,419.5, z=2.04, p=0.041, r=0.08$). Figure 3 summarizes the percentage of students who reported they “Strongly Agree” or “Agree” with the four mastery items by engagement in commercial contract cheating. There were no significant differences in mastery scores between sharers ($Mdn=4.3$) and non-sharers ($Mdn=4.3$) ($U=28,673.5, z=1.52, p=0.129, r=0.06$).

Like self-efficacy, mastery had a significant negative association with total stress ($r_s(616)=-0.116, p=0.004$). High levels of stress were associated with lower mastery scores. This was particularly true for school stress where the association was strongest ($r_s(618)=-0.121, p=0.003$).

Non-parametric tests were used to explore differences in mastery scores by demographic characteristics. Significant differences in mastery scores were found for student status, gender, and marital status. International student participants scored higher in mastery ($Mdn=4.5$) than domestic students ($Mdn=4.3$) ($U=36,522.5, z=-2.82, p=0.005, r=-0.11$), female ($Mdn=4.3$) and married ($Mdn=4.3, IQR=0.75$) participants scored higher than other genders ($Mdn=4.0$) and non-married participants ($Mdn=4.3, IQR=1.00$) ($U=26,130.0, z=-2.54, p=0.011, r=-0.10; U=40,382.5, z=-2.16, p=0.031, r=-0.09$).



Fig. 3 Percentage of Participants Reporting “Strongly Agree” or “Agree” with Four Items of Mastery by Engagement in Commercial Contract Cheating

Figure 4 summarizes the percentage of participants who reported they used the five coping strategies “Some” or “A lot” by engagement in sharing behaviour. Significant associations were found between use of positive reinterpretation [$\chi^2(3,614) = 9.53, p = 0.023$] and active coping [$\chi^2(3,612) = 12.030, p = 0.007$] and sharing behaviour. Sharers used positive reinterpretation (58.5%) and active coping (71.9%) less than participants reporting that they did not share (64.1%, 82.2%). No significant associations were found between use of coping strategies and commercial contract cheating [$\chi^2(3,615) = 2.22, p = 0.528$; $\chi^2(3,615) = 3.18, p = 0.365$; $\chi^2(3,614) = 0.869, p = 0.833$; $\chi^2(3,613) = 2.80, p = 0.424$; $\chi^2(3,614) = 4.46, p = 0.216$].

Kruskal–Wallis H tests found significant differences in stress levels among categories for positive reinterpretation [$H(3) = 23.51, p < 0.001$], beliefs [$H(3) = 32.83, p < 0.001$], and active coping [$H(3) = 19.62, p < 0.001$]. Pairwise comparison using Mann–Whitney U tests suggested that participants reporting they did not use positive reinterpretation at all ($Mdn = 9.0$) had higher stress levels than those who used this strategy “A lot” ($Mdn = 5.0$) ($U = 3306.5, z = -4.06, p < 0.001, r = -0.27$) (see Fig. 5). Students who used active coping “A little bit” ($Mdn = 8.0$) had higher stress levels than those who used active coping “A lot” ($Mdn = 5.0$) ($U = 9329.5, z = -3.95, p = 0.000, r = -0.21$).

Positive reinterpretation was used significantly more often by non-English speaking students ($Mdn = 3.0, IQR = 2$) ($U = 36,091.0, z = -3.36, p < 0.001, r = -0.14$), those who self-identified as racialized minority ($Mdn = 3.0, IQR = 2.0$) ($U = 31,187.0, z = -2.90, p = 0.004, r = -0.12$), international students ($Mdn = 3.0, IQR = 2.0$) ($U = 36,380.0, z = -3.10, p = 0.002, r = -0.13$), and participants who were not married ($Mdn = 3.0, IQR = 1.0$) ($U = 49,755.0, z = 2.16, p = 0.031, r = 0.09$) than English-speaking ($Mdn = 3.0, IQR = 1.0$), non-racialized minority ($Mdn = 3.0, IQR = 1.0$), domestic ($Mdn = 3.0, IQR = 1.0$) and married participants ($Mdn = 3.0, IQR = 2.0$). Active coping style was reportedly used more often by those speaking languages other than English at home

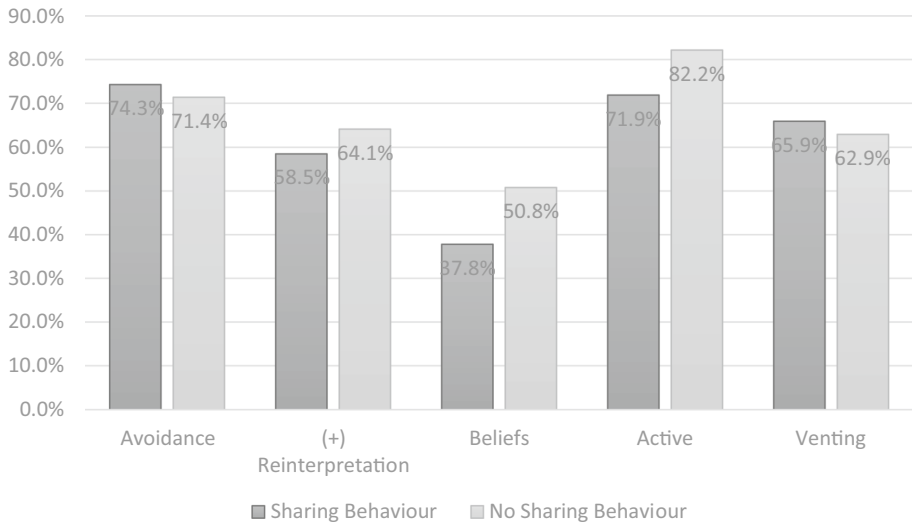


Fig. 4 Percentage of Participants Using Coping Strategies “Some” or “A Lot” of the Time by Engagement in Sharing Behaviour

($Mdn=4.0$) ($U=36,804.5$, $z=-2.98$, $p=0.003$, $r=-0.12$), international students ($Mdn=4.0$) ($U=33,669.0$, $z=-4.51$, $p<0.001$, $r=-0.18$), and participants who were not married ($Mdn=4.0$) ($U=51,883.0$, $z=3.46$, $p<0.001$, $r=0.14$) compared to participants who speak English at home ($Mdn=3.0$), domestic ($Mdn=3.0$), and married participants ($Mdn=3.0$).

No statistically significant differences in family/friend social support or peer support and engagement in violation behaviours were found. Levels of support provided by family and friends and peers did not differ between commercial contract cheaters and non-commercial contract cheaters ($U=17,967.0$, $z=0.05$, $p=0.963$, $r=0.00$; $U=17,231.0$, $z=-0.26$, $p=0.796$, $r=-0.01$). Levels of family/friend support and peer support also did not differ between sharers and non-sharers ($U=22,571.5$, $z=0.51$, $p=0.614$, $r=0.02$; $U=21,509.0$, $z=-0.03$, $p=0.980$, $r=-0.00$).

Social support from family and friends and from peers both had significant negative associations with total stress ($r_s(615)=-0.143$, $p<0.001$; $r_s(612)=-0.158$, $p<0.001$). High levels of stress were associated with lower levels of perceived availability of social support. This was particularly true for instrumental support provided by family/friends ($r_s(615)=-0.161$, $p<0.001$) and provided by peers ($r_s(612)=-0.181$, $p<0.001$).

Significant differences were found in family/friend and peer support for several demographic factors. Students who spoke English at home ($Mean\ rank=312.6$), international ($Mdn=2.7$), and married students ($Mdn=2.7$) reported significantly more family/friend support than non-English ($Mean\ rank=289.2$), domestic ($Mdn=2.3$), and non-married students ($Mdn=2.3$) ($U=38,795.0$, $z=-2.08$, $p=0.037$, $r=-0.09$; $U=36,936.0$, $z=-2.92$, $p=0.003$, $r=-0.12$; $U=50,825.5$, $z=2.64$, $p=0.008$, $r=0.11$). International students ($Mdn=2.0$) and those full-time ($Mdn=2.0$) in their studies reported more support from college peers than domestic ($Mdn=0.4$) and part-time students ($Mdn=1.0$) ($U=36,548.5$, $z=-2.90$, $p=0.004$, $r=-0.12$; $U=8812.0$, $z=-4.70$, $p<0.001$, $r=-0.19$). Significant differences in peer support were also found by work hours [$H(4)=16.20$, $p=0.003$]. Students working 11–20 h per week ($Mdn=2.0$) reported more peer support than students who worked 30 or more hours per week ($Mdn=1.3$) ($U=5008.0$, $z=-3.05$, $p=0.002$, $r=-0.19$).

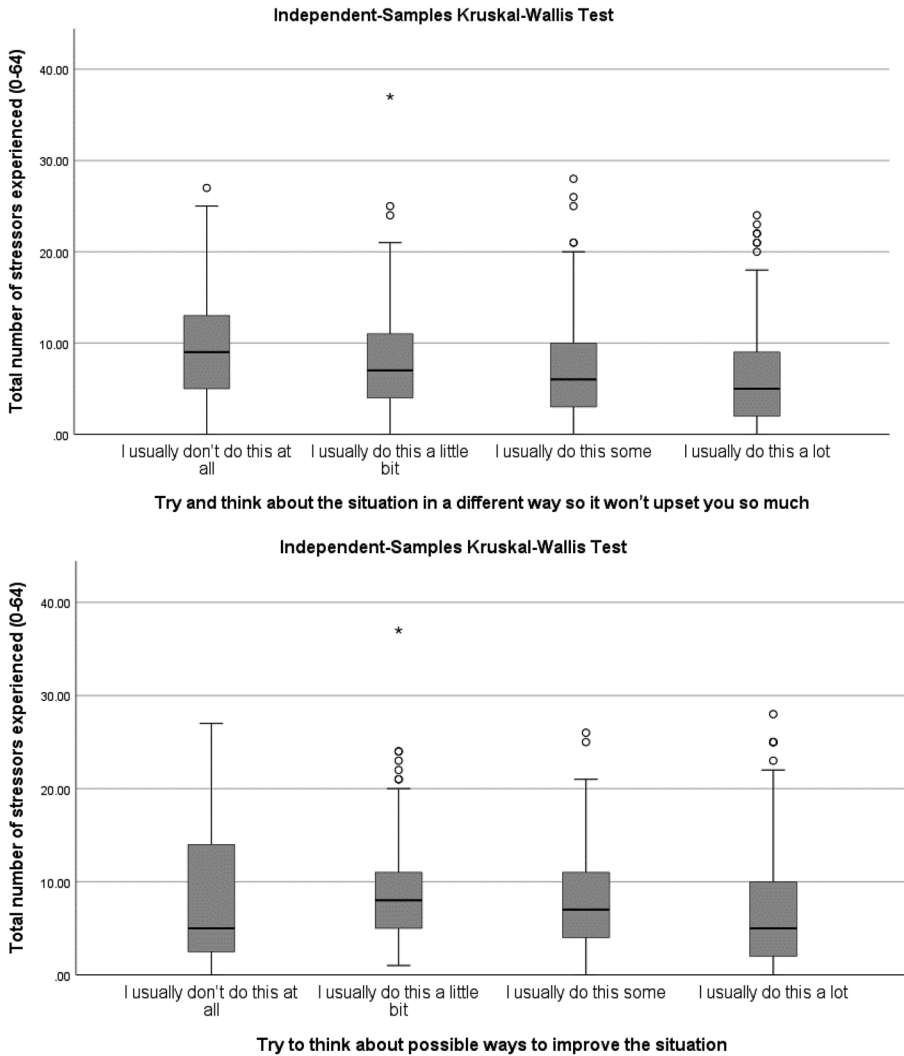


Fig. 5 Differences in Stress Levels by Use of Positive Reinterpretation and Active Coping

Mann–Whitney U tests found perceived instructor support significantly differed for sharing behaviours ($U=33,114.5$, $z=4.12$, $p<0.001$, $r=0.16$). The median for instructor support was 3.5 for participants who engaged in sharing and 4.0 for participants who did not engage in sharing. Students who engaged in sharing were more likely to disagree that instructor support was available compared to students who did not share. Table 6 compares the percentages of students who “Strongly Disagree” or “Disagree” with items of instructor support by engagement in violation behaviour. Instructor support did not differ significantly for commercial contract cheating ($U=35,486.5$, $z=1.17$, $p=0.241$, $r=0.04$).

Of all the types of social support, instructor support had the strongest negative association with total stress ($r_{s(621)}=-0.216$, $p<0.001$). High levels of stress were significantly associated with low perceived instructor support.

Table 6 Percentage of Students that “Strongly Disagree” or “Disagree” with Items of Instructor Support by Engagement in Behaviour

	Commercial Contract Cheating				Sharing Behaviour			
	Yes		No		Yes		No	
	%	n	%	n	%	n	%	n
I have opportunities to approach/contact my instructor for assistance when needed	3.9	4	4.2	27	6.5	6	4.3	25
Instructors have explained the college’s academic honesty policy and the consequences for breaking it	7.8	8	5.2	33	6.5	6	5.5	32
Instructors spend class time teaching me how to cite (how to quote, paraphrase, and summarize with acknowledgement) and reference	37.9	39	30.8	199	56.5	52	28.5	164
Instructors spend class time talking about contract cheating and its consequences	23.3	24	20.2	130	33.7	31	19.5	112
Instructors consistently monitor and discipline violation behaviours	11.6	12	5.5	35	6.6	6	6.3	36
Instructors spend class time explaining guidelines on group work and collaboration	19.4	20	14.0	90	22.8	21	13.9	80

Mann–Whitney U tests explored whether there were differences in perceived instructor support for student status, language, and full and part-time studies. International students reported significantly higher scores on instructor support ($Mdn=4.0$) than domestic students ($Mdn=3.7$), $U=30,531.0$, $z=-6.13$, $p<0.001$, $r=-0.25$. English students had lower scores on instructor support ($Mdn=3.8$) than students who reported they did not speak English at home ($Mdn=4.0$) ($U=34,556.0$, $z=-4.24$, $p<0.001$, $r=-0.17$). Full-time students were more likely to agree that instructor support was available ($Mdn=4.0$) compared to part-time students ($Mdn=3.6$), $U=10,944.0$, $z=-3.22$, $p=0.001$, $r=-0.13$.

Kruskal–Wallis H tests found perceived instructor support also differed significantly by number of terms completed in program ($H(4)=10.26$, $p=0.036$). Pairwise comparisons found higher instructor support was reported among those in their first term ($Mdn=4.0$) compared to those who completed 5 or 6 terms ($Mdn=3.3$), $U=2623.0$, $z=-3.02$, $p=0.003$, $r=-0.17$.

Discussion

We explored student experiences with commercial contract cheating and sharing behaviour and the stress they encountered at one Canadian community college. Like researchers before us, we found that students engaged in a variety of behaviours. Overall, we discovered that almost 14% of participants self-reported that they had engaged in commercial contract cheating and the same percentage engaged in some type of sharing behaviour (RQ1). This was an interesting result as we expected to see a greater proportion of students reporting sharing behaviour as other studies have found (Bretag et al., 2019a; Awdry, 2021). This may have been in part due to participants dropping out of the survey at this point or underreporting (response bias), both of which will be discussed below regarding study limitations. Our prevalence rates are higher than Awdry's (2021), where 7.35% reported engaging in formal outsourcing (e.g., essay mill) and 12.0% in informal outsourcing (e.g., family, friends). Internationally, research on contract cheating reports prevalence rates of anywhere between 3.5% (Curtis & Clare, 2017) to an average of 15.7% (Newton, 2018). Prevalence rates are difficult to compare across studies as contract cheating is defined and operationalized in many ways. Engagement in behaviour associated with assignments was reported more frequently than that for tests or exams and this finding is consistent with previous research of violation behaviour in Canada (Christiansen Hughes & McCabe, 2006; Jurdi et al., 2011; Stoesz & Los, 2019).

Of those who engaged in commercial contract cheating, about 65% of students reported using online tutoring or homework help sites, over 20% used professional exam services, 10% contributed to file-sharing sites, and 6% used professional writing services such as a paper "mill". Essay or paper "mill" usage in our study (with or without payment) was reported less than the 17.9% (payment) reported by Stoesz and Los (2019) for high school students, while use of professional exam services was just over the 18.8% reported by Bretag et al. (2019a) for university students. A recent behaviour, the use of text generating or writing software, was reported by 11.3% of our participants, technology that is quickly becoming more sophisticated, catching the eye of the media (Whitford, 2022), and the topic of recent research (Moya Figueroa et al., 2023). Worth noting here is the overlap in service offerings mentioned by Awdry (2021) which results in complex behavioural patterns. Students are engaging with various commercial services for assistance with their assignments and exams using a wide variety of modes, both contractual and non-contractual.

With respect to sharing behaviour, our findings reveal lower engagement compared to high school and university students in Canada (Christiansen Hughes & McCabe, 2006; Stoesz &

Los, 2019). In 2006, Christiansen Hughes & McCabe found 76% of their sample reported unpermitted collaboration, more than one- and one-half times higher than our result, and Stoesz and Los (2019) reported over 60% of their sample of high school students engaged in this behaviour. Alternately, we found that almost 55% shared an assignment with another student (to have an example to work from), compared to 27.2% of Australian students sharing an assignment (for any reason) (Bretag et al., 2019a), pointing to a well-established normative culture of sharing among peers within the college despite the lower-than-expected proportion of sharers reported.

Contrary to what Bretag et al. (2019a) discovered, we found language spoken at home did not differ by engagement in either commercial contract cheating or sharing. As studies before, we also found no gender difference in engagement in behaviour (Jurdi et al., 2011; Stoesz & Los, 2019). Significant differences in behaviour were found for factors such as employment status, student status, and marital status, suggesting that students differentially engage in behaviours based on their social positions in society in work, school, and family life. Whether stressors associated with these statuses may account for those differences is explored below in a discussion of the results for our remaining research questions.

Answering our second research question, we found there were significantly higher stress levels for students engaged in commercial contract cheating and those engaged in sharing behaviour. This result confirms what has been suggested in earlier academic integrity research that stress be considered a motivating factor in violation behaviour (Wideman, 2011; Ip et al., 2016; Newton, 2018). In addition, our study revealed differences by type of stress experienced. Covid-19 was the top stressor reported by students and this was true for both engagers and non-engagers in violation behaviours. This indicates that some events despite being stressful may not be associated with violation behaviour and perhaps level of stress and the structural contexts of stress are more important for those outsourcing their work. School-related role conflicts (between school, family, and work) and role strains (between the roles associated with being a student) were among the top twenty reported in this study suggesting the importance of these types of stressors to students (Giancola et al., 2009), but school-related role strains were found to significantly differ by engagement in sharing behaviour and not by engagement in commercial contract cheating. Higher levels of stress in the family and school domains for sharers indicate the greater impact of events related to social relationships within these domains and the social expectations that go along with them. Our results also suggest that traumatic life adversities may initiate sharing behaviour as students reach to their peers for academic support during these particularly stressful occurrences. Fine-grained analysis of specific stressors points to the association of a change in job (work stress) and strained relationships with college peers (role strain) to commercial outsourcing and e-proctoring surveillance (school stress) and family-college conflict (role conflict) to sharing behaviour. Post-secondary institutions may therefore learn much from exploring stressors reported by their students which reflect the myriad of conditions experienced across varying realms of their social life during their studies that influence academic behaviour.

We also found that stress was not evenly distributed across our sample of students (RQ3). Students working at least one hour per week were found to have higher work stress and role conflict than those who do not work, a result supported by previous research (Giancola et al., 2009). Domestic students reported more stress than international students for all types of stress except strains within their student roles. Domestic students appear to be experiencing higher stress levels in work, school, and family domains, including stress related to conflicts among roles within these domains. The result suggests that domestic community college students who typically work more hours and potentially have more immediate interactions with

their social networks exhibit greater work/family/school conflict, making sharing an attractive solution to completing their academic work. Not surprisingly, international students did report more stress related to specific stressors such as moving, inability to find work, and involuntary separation from parents than domestic students. This result may reflect their concern over unstable living conditions and the high financial burden of college as has been noted in previous stress research of college students (Acharya et al., 2018). Overall, the differences in stress align with differences in violation behaviour suggesting that some groups of students are exposed to more stress than others and this may put them at greater risk for violation behaviour. Whether this holds up under more stringent tests that control for other important demographic factors is a task for future research.

We found mixed results for our fourth research question. Use of and access to personal and social resources differed by type of behaviour. Student confidence in their ability to complete tasks related to academic integrity and their sense of control over academic integrity was lower for commercial contract cheaters. Previous research has found that mastery acts as a barrier to the consequence of stressors (Pearlin & Bierman, 2013), and self-efficacy a protective factor in academic misconduct (Jurdi et al., 2011; Rundle et al., 2019). Bolstering student confidence and sense of control with respect to academic integrity then should be the focus for institutions of higher education, particularly considering its link to commercial outsourcing. Two coping strategies, positive reinterpretation, and active coping, both found to help reduce the impact of stress (Giancola et al., 2009), were utilized more by non-sharers. Of the three measures of social support, only instructor support was significant where non-sharers perceived greater availability of instructor support than did sharers. Interestingly, international students had higher levels of mastery and social support from all sources than domestic students and were also less likely to engage in sharing. Alternately, non-married students had lower levels of family/friend social support and were more likely to share. Perhaps non-married students lacking the support of family/friend support turn to their peers in times of need leading to more sharing behaviour. In previous research family support has been shown to result in more positive academic outcomes (Giancola et al., 2009). If the absence of these coping strategies and supports result in outsourcing, perhaps students who do not use these resources activate sharing as an alternative and employ it as a viable coping strategy to alleviate stress. Future research could further explore whether contract cheating be considered a type of maladaptive response to the existence of stress and utilized in the absence of or with insufficient personal or social resources in the context of mental health (Wheaton et al., 2013).

Notably, all forms of personal and social resources were related to stress. Overall, stress was associated with lower levels of personal and social resources. This may indicate, as suggested in prior stress research, that stress erodes these important resources (Pearlin et al., 1981) which leads to engagement in violation behaviour. More sophisticated multivariate analysis of longitudinal data is needed to further explore how the resources interact with stress. That is, do resources dampen the effects of stress on violation behaviour (moderating effect) or do stressors erode resources leading to violation behaviour (mediating effect)?

The stress process model used to frame our analysis has proved to be beneficial in expanding our understanding of commercial contract cheating and sharing behaviour of community college students. It has allowed us to challenge the way we think about engagement in violation behaviour as being one of individual decision and instead draws our attention to how a student's location in the social institutions of work, family, and school, how their positions of advantage or disadvantage, and their involvement in social relationships may produce stress which we have found to be associated with contract cheating. While our findings are based on associations, thus preventing us from asserting causality, seeing stress in this way does allow post-secondary institutions to address the structural conditions

which lead to stress so that they may be able to alleviate the stress that is linked to violation behaviour. For this to be effective, institutions of higher education must seek to consider stress and mental health not only at the individual level by developing supports such as stress management supports (Rith-Najarian et al., 2019) and supports for those for students experiencing traumatic life adversities, but also at the meso (program, department), macro (institution), and mega (beyond) levels (Eaton, 2020b). This would entail rethinking the implementation of stress inducing exam monitoring practices such as e-proctoring surveillance and courseload and assessment expectations. As instructor support was found to be important in this study, instructor-student partnerships (Lancaster, 2022) may be vital in reducing stress levels and curbing violation behaviour. At the macro level, institutions may consider implementing supports that address stress associated with housing and job insecurity and access to technology necessary to complete academic work. Care and attention are needed toward minimizing the stress of academic misconduct and reframing it as learning, as well as incorporating mental health supports into academic integrity policy and procedure with the inclusion of mental health experts as part of the process (Eaton et al., 2023).

Limitations

There are limitations of this study which lead researchers to call for caution when interpreting the results. As the study used cross-sectional research design and our analysis involved calculating correlations, we cannot establish causality. Future research exploring the stress process model would benefit from a longitudinal design so that researchers can more accurately measure change over time to determine if contract cheating is a direct response to stress. Collecting more detailed information about the stressors and other learner experiences as they navigate academic integrity across their programs would add much needed context toward explaining academic misconduct.

Self-report surveys of violation behaviour have posed challenges for researchers including low response rates and missing data. Our study showed improved response rates which researchers attribute to student involvement as research partners, although this was not a measured effect. However, despite efforts to safely engage students in disclosing their behaviours, missing data was still an issue. Our analysis of the missing data suggests this may be due to the survey's length. On average it took participants 15:40 min to complete the survey and for those indicating they had engaged in behaviours the average time ranged from 24:20 to 26:22 min. Research suggests survey length is related to response rate (and resulting missing data). Fan and Yan (2010) report that thirteen minutes or less is the ideal length for obtaining a high response rate (p.133). Missing data may also be explained by the sensitivity of the questions which had a cumulative effect over the course of the survey. Learners may fear repercussion from the institution (Tourangeau & Yan, 2007) or may actively distance themselves from behaviours that hold a powerful negative stigma (Ariely, 2012). Finally, missing data may indicate social desirability bias (Tourangeau & Yan, 2007). Learners may wish to avoid being perceived as engaging in multiple types of behaviour that violate academic integrity and underreport. As Krásničan et al. (2022) suggest, collection of data using multiple methods can give us a clearer picture of the prevalence and type of contract cheating behaviour that are occurring in our institutions.

The use of checklists to measure social constructs also has its problems. A participant brings to the survey unique individual experiences and diverse cultural understandings of academic integrity and stress which checklists cannot capture. Previous research has pointed to the importance of considering international students' knowledge and emotions related to

academic integrity so that institutions may better respond to the challenges and supports of these students (Sanni-Anibire et al., 2021). Similarly, stressor checklists fail to capture individual perceptions of the severity of stress and assume all stressors produce negative consequences equally (Anderson et al., 2021). While efforts were made to allow participants the option of stating events they felt were stressful, we did not capture the relative stress perceived by the individual. There is still much work to be done in developing more inclusive measures that capture diverse perspectives and interpretations of academic integrity and stress.

Finally, as our study was conducted amid a pandemic, stress levels may have been elevated leading to an overestimation of the level of stress experienced by participants while the prevalence of contract cheating remained similar to that found in prior research. Several factors give us confidence that our results were not simply due to the social conditions of a pandemic. First, although COVID-19 was the top stressor, it was not reported significantly more by commercial contract cheaters or sharers. This leads us to believe that not all stressors impact student behaviour. Stressors within the work, family, and school domains seemed to be more impactful and these stressors are not going away for students in higher education. Second, studies outside the pandemic have shown that, as a population, students typically do report more stress than other populations (Eisenberg et al., 2013; Larcombe et al., 2016). This finding is not surprising as students navigate the pressures of multiple often conflicting roles both in and outside the educational context. Exploring how stressors are interrelated and proliferated (Pearlin et al., 1981) may be the key to uncovering how stress manifests itself in student misconduct.

Conclusion

Our study sheds light on the impact stress has on student academic misconduct in general, and contract cheating in particular.

Significance

With over 900 participants, the results of our study, to our knowledge, represent the largest empirical data set collected on contract cheating in Canada to date. An additional original contribution of this research to the extant body of work on academic misconduct are empirical results that are specific to the community college context.

Our findings showed that stressors in a student's life can be drivers of engaging in contract cheating. Additional factors can include the student's location within systems of stratification, participation within social institutions, and social relationships. Our results show that there is no single cause-and-effect relationship that can be identified with regards to why students engage in academic misconduct and oversimplifications for the reasons why students cheat can be both inaccurate and unhelpful. Our study has shown that students can experience multiple and concurrent stressors at any given time and that different types of students have different stressors. There is no "one size fits all" answer as to why students engage in contract cheating. Acknowledging and understanding these complexities can help institutions develop educational awareness plans about academic integrity, supports for students' academic success, and supports for students' mental well-being. A wholistic approach to academic integrity that acknowledges students' lived realities and daily stressors can help to promote student success over the long term.

Appendix 1 Stress Inventory

-
- | | |
|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1. Serious accident or injury | 33. Change of job |
| 2. Serious illness | 34. Threat of layoff |
| 3. Change in the use of alcohol or drugs | 35. Unable to find work |
| 4. Discrimination (by race, ethnicity, gender, age, ableness, sexual orientation) | 36. Economic recession |
| 5. Caring for an aging parent almost every day | 37. Demoted or pay cut |
| 6. Trouble with the law | 38. Work conflicting with college |
| 7. Pregnancy, abortion, or miscarriage | 39. Close friend died |
| 8. Criminal victimization | 40. A child died |
| 9. Separation or divorce | 41. Partner or spouse died |
| 10. COVID-19 Pandemic | 42. A child's behaviour is a source of concern |
| 11. Moved | 43. Child(ren) struggling with school |
| 12. Close relationship ended | 44. Involuntary separation from partner or spouse |
| 13. Increased academic workload | 45. Involuntary separation from friends |
| 14. Missed too many classes and have fallen behind in homework/assignments | 46. Involuntary separation from parents |
| 15. Roommate conflict | 47. Involuntary separation from children |
| 16. Failed a course | 48. Serious disagreements with parents |
| 17. Repeated a course | 49. Partner or spouse has a change in the use of alcohol or drugs |
| 18. Experienced an incident of academic misconduct | 50. Family member or friend has a long-term illness |
| 19. Appealed a mark or grade | 51. Partner or spouse has a long-term illness |
| 20. Threat of losing financial aid to pay for college | 52. Parent died |
| 21. Fear of not graduating | 53. Close friend seriously ill |
| 22. Trouble accessing a computer or other technology necessary for completing your assignments/exams | 54. Close family member died |
| 23. Exam stress due to e-proctoring surveillance | 55. Demands from parents or in-laws |
| 24. College conflicting with family life | 56. A child moved out/back into house |
| 25. College conflicting with job | 57. Friends or family moved away |
| 26. Trouble working with or getting along with college peers | 58. Child seriously ill |
| 27. Trouble working with or getting along with instructors | 59. Partner or spouse seriously ill |
| 28. Worried about your overall performance in college | 60. Parent seriously ill |
| 29. Not achieving the grades you wanted to | 61. Friends are a negative influence |
| 30. Worried about losing job | 62. Family life conflicting with college |
| 31. Fired or laid off | 63. Mental health concerns |
| 32. Major financial crisis | 64. Other |
-

Appendix 2 Eigenvalues, Percentages of Variance, Factor Loadings, and Cronbach's Alpha for All Scales

	<i>Eigenvalue</i>	<i>% Of Total Variance</i>	<i>Factor Loadings</i>	<i>Cronbach's Alpha</i>	<i>N</i>
Academic Integrity Self-Efficacy	3.093	61.87	0.767–0.821	0.84	778
Academic Integrity Mastery	2.821	70.52	0.728–0.887	0.85	776
Family/Friend Support	2.433	81.10	0.876–0.902	0.88	617
Peer Support	2.529	84.31	0.909–0.928	0.91	614
Instructor support	3.479	57.98	0.672–0.822	0.85	787

*Exploratory Factor Analysis revealed single factors for all scales in the analysis

Author Contribution All authors contributed to the study conception and design. Material preparation, data collection, and analysis were performed by Corrine D. Ferguson, and Margaret A. Toye. Statistical procedures were completed by Corrine D. Ferguson. The first draft of the manuscript was written by Corrine D. Ferguson, Margaret A. Toye, and Sarah Elaine Eaton, and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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Data Availability The data set is not publicly available.

Declarations

Ethics Approval The Bow Valley College Research Ethics Board granted approval for this study.

Consent to Participate Participants implied consent with the completion of the survey. Participants were informed of their right to withdraw from the study but as their responses were anonymous their data would not be removed from the data file.

Consent for Publication Ethics Board approval and authorship agreements allow for consent to publish.

Preprint A research report was produced as part of the deliverables to the community partner. It has been self-archived in the institutional digital repository but has not undergone peer review.

Conflict of Interest The authors have no conflicts of interest/competing interests to declare that are relevant to the content of this report. Ideas and opinions represented in this research report are those of the researchers.

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