Canadian Journal of Higher Education
Revue canadienne d'enseignement supérieur

A Comparison of the Perceptions of Need Satisfaction and Need Frustration Between Racialized and Non-Racialized Undergraduate Students

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Cite this article

Oram, R., Sullivan, R. & Rogers, M. (2023). A Comparison of the Perceptions of Need Satisfaction and Need Frustration Between Racialized and Non-Racialized Undergraduate Students. *Canadian Journal of Higher Education / Revue canadienne d'enseignement supérieur*, *53*(1), 16–31. https://doi.org/10.47678/cjhe.v53i1.189843

Article abstract

Research has demonstrated that racialized students experience additional stressors during post-secondary education compared to their white counterparts. These barriers can include added institutional barriers, lower representation among faculty, additional stress associated with cultural differences and stigmatization, discrimination, and racism. According to self-determination theory, students who experience an unsupportive or controlling environment are more likely to have lower basic psychological need satisfaction, lower academic motivation, and lower well-being. The current study aimed to examine whether white and racialized students would differ in their perceptions of need satisfaction and need frustration in their learning environment. Participants were undergraduate students (N = 712) from a large Canadian university. A one-way MANCOVA was performed comparing racialized and white students on basic psychological need satisfaction and frustration with gender as a covariate. Results suggested that racialized students perceived lower autonomy satisfaction, lower competence satisfaction, and higher relatedness frustration in their learning environment. These findings present important implications for higher education institutions. Institutions should recognize the diverse needs of their student population and ensure that learning environments are supportive of these needs, as they can have significant detrimental impacts on the overall well-being and academic success of these students.

A COMPARISON OF THE PERCEPTIONS OF NEED SATISFACTION AND NEED FRUSTRATION BETWEEN RACIALIZED AND NON-RACIALIZED UNDERGRADUATE STUDENTS

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Abstract

Research has demonstrated that racialized students experience additional stressors during post-secondary education compared to their white counterparts. These barriers can include added institutional barriers, lower representation among faculty, additional stress associated with cultural differences and stigmatization, discrimination, and racism. According to self-determination theory, students who experience an unsupportive or controlling environment are more likely to have lower basic psychological need satisfaction, lower academic motivation, and lower well-being. The current study aimed to examine whether white and racialized students would differ in their perceptions of need satisfaction and need frustration in their learning environment. Participants were undergraduate students (N = 712) from a large Canadian university. A one-way MANCOVA was performed comparing racialized and white students on basic psychological need satisfaction and frustration with gender as a covariate. Results suggested that racialized students perceived lower autonomy satisfaction, lower competence satisfaction, and higher relatedness frustration in their learning environment. These findings present important implications for higher education institutions. Institutions should recognize the diverse needs of their student population and ensure that learning environments are supportive of these needs, as they can have significant detrimental impacts on the overall well-being and academic success of these students.

Keywords: racialized students, self-determination theory, undergraduate mental health

Résumé

La recherche a démontré que les étudiants racisés subissaient des facteurs de stress supplémentaires au cours de leurs études postsecondaires par rapport à leurs homologues blancs. Ces obstacles peuvent inclure des entraves institutionnelles supplémentaires, une représentation plus faible au sein du corps professoral, un stress supplémentaire associé aux différences culturelles et à la stigmatisation, la discrimination et le racisme. Selon la théorie de l'autodétermination, les étudiants qui font l'expérience d'un environnement peu favorable ou contrôlant sont plus susceptibles d'avoir une satisfaction moindre de leurs besoins psychologiques fondamentaux, une motivation moindre dans leurs études et un bien-être moindre. La présente étude visait à déterminer si les étudiants blancs et racisés différaient dans leur perception de la satisfaction et de la non-satisfaction de leurs besoins dans leur environnement d'apprentissage. Les participants étaient des étudiants de premier cycle (N = 712) d'une grande université canadienne. Une MANCOVA à sens unique a été réalisée pour comparer les étudiants blancs et racisés quant à la satisfaction et à la non-satisfaction de leurs besoins psychologiques de base, avec le sexe comme covariable. Les résultats suggèrent que les étudiants racisés perçoivent une plus faible satisfaction en matière d'autonomie et de compétence et une plus grande non-satisfaction en ce qui concerne les relations dans leur environnement d'apprentissage. Ces résultats présentent des implications importantes pour les établissements d'enseignement supérieur. Les établissements devraient reconnaître les divers besoins de leur population étudiante et s'assurer que les environnements d'apprentissage répondent à ces besoins, car il peut y avoir des effets néfastes importants sur le bien-être général et la réussite scolaire de ces étudiants.

Mots-clés : étudiants racisés, théorie de l'autodétermination, santé mentale des étudiants de premier cycle

Introduction

Recent research has suggested there is a mental health crisis taking place in Canada's post-secondary institutions. According to the Canadian National College Health Assessment (American College Health Association, 2016), nearly two-thirds of students reported having felt hopeless in the preceding year or experienced overwhelming anxiety. Moreover, nearly half reported that their feelings of depression had impacted their ability to function. These numbers have been increasing since the 2016 report was released (Linden et al., 2021). Although the general post-secondary population experiences high levels of stress and significant mental health difficulties, there are unique mental health needs and stressors for those who identify as racial minorities.

Racialized Students and Higher Education

Racialized students experience added institutional barriers (Guillaume & Christman, 2020), lower representation among faculty (Llamas et al., 2021), additional stress associated with cultural differences and stigmatization (Arbona et al., 2018; Linden et al., 2018), stereotype threat (Young-Brice et al., 2018), and academic disengagement (Debrosse et al., 2018). Several studies have indicated the pervasiveness of racial discrimination experienced by post-secondary students who identify as racial minorities, including Indigenous (Bailey, 2016; Clark et al., 2014; Currie et al., 2020), Arabic (Modir & Kia-Keating, 2018), Asian (Choi et al., 2021; Nadal et al., 2012; Wong-Padoongpatt et al., 2017), Latinx (Del Toro & Hughes, 2020), and Black students (Del Toro & Hughes, 2020; George Mwangi et al., 2019; Morales, 2021; Williams et al., 2020).

Racialized students often experience microaggressions, defined as indirect, subtle, or unintentional everyday forms of discrimination against a marginalized group (Nadal et al., 2012). Students' experiences of microaggressions can take place at the institutional level, including exposure to discriminatory settings (Choi et al., 2021), or at the interpersonal level, including false assumptions of their intellectual abilities or status by peers or professors (Brooms & Davis, 2017; Caplan & Ford, 2014). For example, a study on the perspectives of Indigenous students at Canadian post-secondary institutions found that the students' cultures and histories were misrepresented in content taught by professors, and that they were praised by their peers for simply being in university (Bailey et al., 2016). Moreover, in a longitudinal study, Del Toro and Hughes (2020) found that Black, Latinx, and

Asian students' perceived discrimination from professors increased over a three-year period. Thus, the longer racialized students were immersed in the higher education setting, the more instances of daily indignities they experienced from professors, leading them to attribute patterns of behaviour from professors as discrimination.

Unsurprisingly, these experiences can negatively impact racialized students' well-being and adjustment to the post-secondary setting. Extensive research has demonstrated that students' experiences of discrimination are associated with higher prevalence of psychological distress (Forrest-Bank & Cuellar, 2018), depression (Arbona et al., 2018; Choi et al., 2021; Del Toro & Hughes, 2020; MacLeod et al., 2020), anxiety (Chaudry, 2021; Stein et al., 2019; Teixeira et al., 2021), physical health (Del Toro & Hughes, 2020) and poor responses to stress (Franklin, 2019). Some research also identifies disparities in well-being among racialized post-secondary students. Hop Wo and colleagues (2020) revealed that Indigenous students at Canadian post-secondary institutions have higher prevalence of mental health issues and substance use than non-Indigenous students. Racialized students also face systemic barriers to their academic success, such as low socio-economic status (Statistics Canada, 2016) and inequitable access to overall determinants of health (Abdillahi & Shaw, 2020), putting them at greater risk for ill-being and academic disengagement (Banerjee et al., 2022; Jury et al., 2017; Lacey et al., 2021).

Although racialized students are more likely to face these additional impediments to their well-being, they face barriers in accessing mental health services. Research has demonstrated that Asian, Black, and South Asian Canadian post-secondary students experiencing mental health issues are less likely to seek support through mental health services than white students (Chiu et al., 2018; Gadalla, 2010). Moreover, Arday (2018) found that help-seeking barriers for Black and racialized post-secondary students included concerns regarding language barriers and perceived discrimination from health care professionals.

Given that overall well-being is an antecedent to academic success (Davis & Hadwin, 2021; Raskind et al., 2019; Yu et al., 2018), it is unsurprising that prior research also indicates disparities in academic achievement among racialized students (Johnson et al., 2014). Research shows that White post-secondary students are more likely to graduate than Black, South Asian, Latinx, and Indigenous students (Clark et al., 2014; Fairlea, 2014; James & Parekh, 2021). Moreover, Del Toro and Hughes (2020) found that racialized post-secondary students who had increasing perceptions of

discrimination from professors over three years of college experienced negative impacts to their GPAs.

Racialized faculty are underrepresented in higher education institutions (Henry et al., 2017; Martinez et al., 2017; Povey et al., 2022), which can cause racialized students to feel isolated (Bailey, 2016) and less prioritized in these environments (Bailey, 2016; Caxaj et al., 2021; Cook-Sather & Seay, 2021; George Mwangi et al., 2019). The predominant whiteness of institutions can also contribute to disparities in academic success, as research shows that racialized faculty support the academic achievement of racialized students (Brooms & Davis, 2017; Dika et al., 2018; Guiffrida & Douthit, 2010). For example, in a study by Llamas et al. (2021), racialized students who had at least one professor of their own self-identified racial identity earned higher GPAs and had higher graduation rates than racialized students who did not.

The literature on belonging in higher education identifies the impacts that perceptions of one's learning environment have for racialized students (Cook-Sather & Seay, 2021; George Mwangi et al., 2019; MacLeod et al., 2020; Murphy & Zirkel, 2015; Ross et al., 2014; Smith, 2017). Belonging can be defined as feeling connected, valued, respected, and encouraged by others (Asher & Weeks, 2014). Prior research has demonstrated that racialized post-secondary students report lower levels of belonging than white students (Cook-Sather & Seay, 2021; Gopalan & Brady, 2019).

Moreover, Cook-Sather and Seay (2021) found that when professors employed a pedagogical partnership, defined as a reciprocal approach through which all participants had the opportunity to contribute equally to pedagogical conceptualization, decision making, and implementation, perceived belonging increased in Black female post-secondary students. According to self-determination theory (SDT), this would reflect an autonomy-supportive environment. SDT also posits that an individual's social and cultural environments can foster different types of motivation through the satisfaction or frustration of their basic psychological needs (Ryan & Deci, 2017). If an autonomy-supportive approach was used by professors, they may have an impact on the need satisfaction of racialized students.

Self-Determination Theory

SDT is one of the most prominent motivational theories applied to the educational context. The three basic psychological needs (BPN) include autonomy, competence, and relatedness. Autonomy refers to volition and agency feelings in the context of one's behaviours and decisions (Ryan

& Deci, 2002). An autonomous individual understands the causal source of one's behaviours, does not feel pressured to engage in an activity, and understands their ability to make their own decisions. Competence refers to the feeling of self-efficacy or feeling effective in one's actions. Individuals who are competent feel they have the skills to master and overcome challenges (Deci & Ryan, 2000; Ryan & Deci, 2002). Relatedness refers to feeling connected to others and having a sense of belonging within one's community (Niemiec & Ryan, 2009).

In recent years, SDT research was extended through the examination of the impacts of the frustration of the BPN. BPN frustration refers to the active blocking of needs satisfaction (Chen et al., 2015). Autonomy is frustrated when individuals feel controlled; relatedness is frustrated when individuals feel excluded; competence is frustrated when individuals experience feelings of failure (Chen et al., 2015). Research has shown that need frustration contributes more significantly to facets of ill-being (Bartholomew et al., 2011; Chen et al., 2015) than lower need satisfaction (Unanue et al., 2014). Because of this, need frustration has been considered an asymmetrical and distinct construct (Vansteenkiste & Ryan, 2013). For example, need frustration has been associated with more controlled forms of motivation or amotivation (Teixeira et al., 2021) and often mediates the relationship between negative environments and depressive symptoms (Campbell et al., 2018).

Learning Environments and BPN

Several studies have demonstrated the importance of need satisfaction in undergraduate students' psychological and emotional well-being (Deci et al., 2001; Faye & Sharpe, 2008; León & Núñez, 2013; Levesque et al., 2004; Niemic & Ryan, 2009). For example, students who experience greater need satisfaction tend to be better adjusted in the classroom, demonstrate greater internalization of class material, and experience greater academic achievement (Kelly et al., 2008). Moreover, research has demonstrated that those who experience higher BPN satisfaction often experience reductions in appraisals of stress (Vansteenkiste & Ryan, 2013), engage in more adaptive coping (Weinstein & Ryan, 2011), and increased resilience (Neufeld & Malin, 2019).

According to SDT, BPN are satisfied within an individual's social environment (Ryan & Deci, 2000). Research has suggested that an environment that provides individuals with autonomy support is essential to developing an individual's perceived locus of causality, volition, and perceived choice

(Vansteenkiste et al., 2020). Moreover, the social context is an antecedent to need satisfaction and autonomous motivation (See Figure 1).

Autonomy support refers to the behaviours of one person to nurture another person's inner motivational resources (Reeve, 2009). This SDT-based approach has been examined in various social environments, including coaching, exercise, organizations, health care, psychotherapy, and education (Su & Reeve, 2011). In the academic domain, autonomy support is fostered by providing an autonomy-supportive learning climate. Autonomy-supportive learning climates adopt the students' perspective, provide choice, provide a rationale for assignments, encourage students to share their thoughts, feelings, and behaviours, and support the students' motivational development (Reeve, 2009). Teachers typically provide autonomy support through their interactions with students; however, peers and administrative staff can also support this environment (Edmunds et al., 2008; Rocchi et al., 2017).

In addition to satisfying the BPN, autonomy-supportive learning climates can reduce stress and demands on students, as they focus on the process of learning rather than on grades (Black & Deci, 2000; Ryan & Deci, 2008). Furthermore, autonomy-supportive climates facilitate the process of internalization, which is integral to developing more autonomous forms of academic motivation (Black & Deci, 2000; Deci et al., 1981). SDT research has also demonstrated that an autonomy-supportive instructional style can reduce procrastination behaviours, increase engagement, and positively impact students' academic performance (Baker & Goodboy, 2018; Black & Deci, 2000; Codina et al., 2018; Ryan & Deci, 2017).

In contrast, controlling environments or controlling instructional styles pressures students to think or behave in a specific way. Controlling teacher behaviours include the restrictive use of rewards, excessive control or restriction of autonomy, time pressure, excessive surveillance, and intimidation (Reeve, 2009). Controlling environments or teaching styles can frustrate the BPN, leading to negative consequences, such as lower quality motivation, procrastination, resistance to learning, or disengagement (Codina et al., 2018; De Meyer et al., 2016).

## SDT and Racialized Post-Secondary Students

A recent study explored the basic psychological need satisfaction of Black and racially ethnic post-secondary students from a SDT perspective (Bunce et al., 2021). Bunce and colleagues (2021) conducted a qualitative study with 17 female undergraduate students from a university in the UK. Their findings suggest that Black and racially ethnic students encounter many obstacles that inhibit their satisfaction of autonomy, competence, and relatedness. It follows that the challenges that racialized students experience may stem from a lack of autonomy support within their learning environment.

Current Study

Given the educational disparities experienced by racialized students, systemic racism, and lack of representation that exists within the educational system, we aimed to examine whether white and racialized students would differ in their perceptions of need satisfaction and need frustration in their learning environment. Based on previous research, we hypothesized that racialized students would experience lower need satisfaction and higher need frustration in their learning environment.

Figure 1

Antecedents to Autonomous Motivation According to SDT
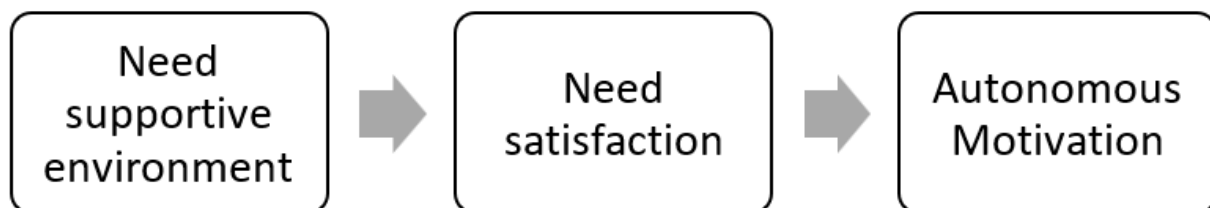
Methods

Participants

Participants in the current study were undergraduate students (N = 712) from a large Canadian university. Students were recruited through advertisements on campus and a research participant pool where students received course credit for participation in studies. Participants were removed if they completed less than 50% of the survey (n = 68) and if they completed the survey in under 12 minutes (n = 27), as the survey was estimated to take approximately 12–15 minutes at a minimum. Of the remaining sample (n = 617), 71 participants declined to disclose their ethnicity or chose "other," which led to a further reduction of participants (n = 546). Approximately 75% of participants were between the ages of 18 and 20 (n = 411), and 19% were between the ages of 21 and 25 (n =106). Nearly three-quarters (73%) of participants were female (n = 398). Over half (60%) of participants were in their first year (n = 327). Participants identified as white (n = 329; 60%), or as racialized, which included Asian (n = 104; 19%), Arabic (n = 52; 10%), Black (n = 47; 9%), Indigenous (n = 8; 1%), and Hispanic (n = 6; 1%) participants.

Measures

BPN Satisfaction and Frustration Scale

The Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS; Chen et al., 2015; Schultz et al., 2015) is designed to assess the three basic psychological needs proposed by SDT (Ryan & Deci, 2017): autonomy, competence, and relatedness. It is a 24-item scale with four items indicative of satisfaction (e.g., "I feel that my decisions at school reflect what I really want") and four items reflecting frustration (e.g., "I feel excluded from the group I want to belong to at school") for each psychological need. Each item is rated on a Likert scale ranging from strongly disagree (1) to strongly agree (7). Higher scores are indicative of higher need satisfaction and frustration. In the present study, the scale was modified to examine need satisfaction and frustration in the post-secondary educational environment. Internal consistency was good (Cronbach's α = .89 for satisfaction; Cronbach's α = .85 for frustration).

Procedure

The university's Research Ethics Board provided ethical approval for the current study. Undergraduate students provided consent prior to their participation in the study. Once consent was obtained, participants completed a brief online survey about their university experience. The participants were given two weeks to complete the survey. After two weeks, the survey was locked. Participants were compensated with one course credit or entered into a draw for a $50 gift card within two weeks of study completion.

Results

Data Screening

Prior to the removal of participants who did not disclose their racial identity or identified as "other," missing data was examined with Little's MCAR test. Results were non-significant (MCAR x^2 (24) = 18.22, p = .79), which indicated that the observed pattern of missing data was not significantly different from a completely random pattern of missing data. Based on the low percentage of missing data and a non-significant Little's MCAR test, the expectation-maximization method was used for imputation (Carter, 2006).

Preliminary Analysis

To examine whether those who identify as racialized experience differences in need satisfaction and need frustration, a multivariate analysis of variance (MANCOVA) was used to compare students who identified as racialized and white students' perceptions of need satisfaction and frustration. Because females showed lower levels of autonomy frustration (M = 4.19, SD = 1.31, t = 4.21, p < .05) than males (M = 4.51, SD = 1.15) and lower levels of relatedness frustration than males (M = 2.68, SD = 1.21, t = 2.33, p < .05), along with lower competence satisfaction (M = 4.81, SD = 1.31, t = 2.11, p < .05) and higher competence frustration (M = 3.98, SD = 1.31, t = -2.20, p < .05), gender was included as a covariate.

Descriptive Statistics

Correlations

Correlations for all variables are included in Table 1. Gender was significantly associated with autonomy frustration,

competence satisfaction, competence frustration, and relatedness frustration. Racial identity, on the other hand, was related to autonomy satisfaction and relatedness satisfaction. All basic psychological needs were associated with one another except for autonomy satisfaction and competence frustration.

Multivariate Analysis

A one-way MANCOVA was performed comparing racialized and white students on the BPN with gender as a covariate. There was a significant multivariate effect for racial identity, $F(7, 537) = 5.01$, p < .001, $\eta^2 = 0.06$; Wilk's $\Lambda = .94$, such that there were significant differences in the combined variables between racial identity, after controlling for gender. To further clarify the results of the MANCOVA, univariate analyses were conducted. Results of univariate analyses are presented in Table 2.

Univariate Analyses

Gender

The covariate, gender, was significantly related to the participants' autonomy frustration, $F(1, 543) = 7.17$, $p < .01$, competence satisfaction, $F(1, 543) = 4.93$, $p < .05$, and competence frustration, $F(1, 543) = 4.92$, $p < .05$. Gender was not significantly related to autonomy satisfaction, relatedness satisfaction, or relatedness frustration.

Racial Identity

After controlling for gender, univariate analyses revealed significant differences between racialized and white participants on autonomy satisfaction, $F(1, 543) = 8.46$, $p < .01$, relatedness frustration, $F(1, 543) = 14.67$, $p < .001$, and competence satisfaction, $F(1, 543) = .26$, $p < .05$. More specifically, those who identified as racialized had lower autonomy satisfaction ($M = 4.68$) than white participants ($M = 4.99$), lower competence satisfaction than white participants ($M = 4.76$; $M = 4.94$), and higher relatedness frustration ($M = 3.01$; $M = 2.60$) compared to white students ($M = 4.43$). All effects were considered small according to Cohen's (1988) benchmarks (Lakens, 2013). All other variables were non-significant.

In examining the different racial identities in our study, Black participants experienced the lowest level of autonomy satisfaction ($M = 4.41$) compared to the highest level experienced by White participants ($M = 4.99$), as well as the lowest level of autonomy support ($M = 4.18$) compared to the highest level experienced by White students ($M = 4.43$). Indigenous participants experienced the lowest level of competence satisfaction ($M = 4.50$) compared to the highest level experienced by White participants ($M = 4.94$), as well as the highest level of relatedness frustration ($M = 3.40$) compared to the lowest level experienced by Hispanic participants ($M = 2.54$). These results are presented in Table 3.

Table 1

Correlations

Variable	1	2	3	4	5	6	7	8
1. Gender	–	.08	.06	-.12**	-.08*	.09*	.05	-.08*
2. Racial Identity	–	–	.10*	-.04	.08	-.04	.03	-.17**
3. Autonomy Satisfaction	–	–	–	-.39**	.62**	-.41	.44**	-.29**
4. Autonomy Frustration	–	–	–	–	-.34**	.47**	-.21**	-.28**
5. Competence Satisfaction	–	–	–	–	–	-.67**	.44**	-.34**
6. Competence Frustration	–	–	–	–	–	–	-.32**	.39**
7. Relatedness Satisfaction	–	–	–	–	–	–	–	-.63**
8. Relatedness Frustration	–	–	–	–	–	–	–	–

*$p \leq .05$. ** $p \leq .01$

Table 2

Means, Standard Deviations, and Results of ANCOVAs

Dependent Variable	Non-Racialized		Racialized		*F*	*p*	η²
	M	*SD*	**M**	*SD*			
Autonomy Satisfaction	4.99	1.05	4.68	1.08	4.85	.03	.01
Autonomy Frustration	4.24	1.27	4.33	1.29	.42	.52	.00
Competence Satisfaction	4.94	1.06	4.76	1.20	4.26	.04	.00
Competence Frustration	3.84	1.42	3.97	1.50	1.41	.24	.03
Relatedness Satisfaction	5.11	1.17	5.04	1.21	.41	.52	.01
Relatedness Frustration	2.60	1.16	3.01	1.24	14.67	.00	.00

*$p ≤ .05$. ** $p ≤ .01$

Table 3

Means and Standard Deviations Between Different Racial Identities

	White	Asian	Arabic	Black	Indigenous	Hispanic
	M *(SD)*					
Autonomy Satisfaction	4.90 *(1.05)*	4.81 *(1.08)*	4.61 *(1.04)*	4.41 *(1.15)*	4.91 *(1.14)*	4.92 *(0.56)*
Autonomy Frustration	4.24 *(1.27)*	4.17 *(1.23)*	4.54 *(1.19)*	4.51 *(1.47)*	4.78 *(1.06)*	3.42 *(1.31)*
Competence Satisfaction	4.94 *(1.06)*	4.68 *(1.20)*	4.82 *(1.12)*	4.85 *(1.20)*	4.50 *(1.60)*	5.04 *(1.42)*
Competence Frustration	3.84 *(1.42)*	4.08 *(1.47)*	4.05 *(1.57)*	3.60 *(1.48)*	4.66 *(1.78)*	3.25 *(0.63)*
Relatedness Satisfaction	5.11 *(1.17)*	5.14 *(1.26)*	5.09 *(1.04)*	4.97 *(1.13)*	4.16 *(1.45)*	4.38 *(1.77)*
Relatedness Frustration	2.60 *(1.16)*	2.99 *(1.24)*	3.09 *(1.31)*	2.97 *(1.18)*	3.41 *(1.35)*	2.54 *(1.21)*

Discussion

The current study aimed to examine differences in the perceptions of need satisfaction and frustration between white and racialized students at a large Canadian university. Our results suggest that racialized students perceived lower autonomy satisfaction, lower competence satisfaction, and higher relatedness frustration in their learning environment. Although this study found similar results to that of Bunce et al. (2021), this study extended their results by examining the perspectives of both white and racialized students. Given our results and the qualitative results of Bunce et al. (2021), we believe that there is a significant need to address the unique needs of racialized students in post-secondary institutions.

Similar to Bunce and colleagues (2021), racialized students in this study perceived lower autonomy satisfaction at school when compared to their white peers. According to Bunce et al. (2021), students reported feeling as though they felt pressured to behave in a specific way and found it difficult to be themselves. Moreover, they expressed that they felt uncomfortable expressing their ideas, that course material was not representative or diverse, and they felt unmotivated to challenge any barriers relating to ethnicity due to stress and demoralization. This finding is also supported by other studies, which revealed that racialized students felt their learning environments did not reflect their own cultural norms, leading them to feel the need to adapt to the white cultural norms dominant in their institutions (Caxaj et al.,

2021; George Mwangi et al., 2019). For example, a qualitative study by Caxaj and colleagues (2021) found that racialized students at a Canadian university experienced additional barriers regarding the expectations of professors for class participation, as speaking up in class contrasted with their own cultural norms regarding respect. Power dynamics between racialized students and professors may contribute to this finding as well. Arday (2018) found that racialized students perceived an imbalance of power and authority due to the centrality and homophily of whiteness within universities. Because of this, racialized students may not feel comfortable expressing their concerns within a classroom setting. Racialized students may also experience forms of covert and overt racism by their peers, administration, and faculty, which can lead to powerlessness and loss of hope (Chaudry, 2021).

Our results also suggest that racialized students perceived lower competence satisfaction. Research has shown that Black students may experience stereotype threat, which is defined as the "sociopsychological threat felt by an individual during a situation or activity for which a negative stereotype applies to a group which they belong to and identify with meaningfully" (Neal-Jackson, 2020, p. 318). In the context of education, stereotype threat theorizes that Black students may have lower academic achievement due to worry or concerns that they will confirm the stereotype of Black intellectual inferiority (Whaley, 2018). Because of the stress and worry about confirming this stereotype, a self-fulfilling prophecy may occur in that these students will experience lower academic achievement. In addition, this may cause students to develop imposter syndrome, where they begin to question whether they belong in higher education despite having strengths that translate into academic success (McGee, 2018).

Research has also shown that racialized students are more likely to experience expectancy effects and differential treatment by instructors throughout their academic career (Chin et al., 2020). Expectations of faculty, as perceived by students, can influence and impact academic achievement. A study by Flanagan et al. (2020) found that teachers had higher expectations for Asian Canadian students and lower expectations for Indigenous students as compared with European Canadian students. This has negative implications for racialized students' confidence and academic achievement, as well as their eventual career choice and attainment (Flanagan et al., 2020). Another study by Scott et al. (2019) found that Black students were more likely to receive more negative feedback from their instructors, regardless of their behaviours. The experience of receiving more negative feedback may exacerbate stereotype threat and may contribute to learned helplessness by these students, especially if it has persisted throughout their entire education.

Racialized students also perceived more relatedness frustration compared to their white peers. This aligns with Bunce et al. (2021)'s findings that students' lack of relatedness negatively impacted their learning and academic experiences, as well as their overall well-being. Students discussed instances where they felt as though they were ignored or purposely excluded from groups in and out of class. They also indicated that they felt a lack of understanding regarding their culture or ethnocultural background, felt judged by their non-racialized peers, and often felt stereotyped as being less intelligent. Prior research has also shown that racialized individuals experience the impacts of othering (Udah, 2019; Udah & Singh, 2019), defined as when one develops an us-versus-them mentality and then excludes, often via marginalization of or lack of curiosity about, those considered "them" (Johnson et al., 2004). When students feel othered, they feel less connected to other people, which can lead to decreases in academic engagement (Neel & Fuligni, 2013) and achievement (Murphy & Zirkel, 2015).

Despite an increase in the number of racialized groups attending higher education, there is still a lack of representation among faculty members. This was an additional issue highlighted by Bunce et al. (2021)'s findings, as students discussed a lack of diversity in the student population, as well as the faculty members at the university. Hiring faculty from a variety of ethnocultural backgrounds has been shown to contribute positively to outcomes for all students, but especially for racialized students (Fairlie et al., 2014; Llamas et al., 2021) and may have implications for both relatedness satisfaction and frustration.

Implications

The results of this study present important contributions to the understanding of BPN satisfaction and frustration of post-secondary students. Our findings suggest that racialized students experience less satisfaction and more frustration of their BPNs than white students. Prior research reveals mental health and academic achievement disparities among students of racialized identities (Hop Wo et al., 2020; Johnson et al., 2014). Given that BPN satisfaction is an antecedent to the well-being and academic achievement of post-secondary students, it is crucial that future

research investigate potential causes of the differences in BPN satisfaction and frustration observed in this study.

According to SDT, autonomy-supportive learning environments support the BPN satisfaction of students. The results of the current study suggest that racialized students may experience autonomy-supportive learning environments to a lesser degree than white students. Given the important role that professors and other higher education staff have in offering autonomy-supportive learning climates, this study's results present important implications for professors and for post-secondary institutions more broadly.

A central component of autonomy-supportive teaching involves understanding the perspectives of students (Reeve & Cheon, 2021). To better support racialized students' needs, teaching staff could become more informed of the diverse perspectives of their students. It is imperative that professors and administrative staff participate in appropriate training in equity, diversity, and inclusion as a means to become knowledgeable of the barriers racialized students face due to systemic racism and discrimination, as well as to gain awareness of their own implicit biases and potential discriminatory behaviours toward students. Educators should teach using an anti-racist lens. Moreover, where applicable, professors can ensure their course material is representative of the lived experiences of all students in an effort to better support internalization for racialized students. Supporting internalization, defined as realizing the value and personal utility of an activity, is fundamental to autonomy-supportive teaching (Reeve, 2009; Ryan & Deci, 2000). If students of racialized identities are unable to personally connect with course material, they will be less likely to value the content, and in turn, be at greater risk for low need satisfaction and high need frustration.

Regarding post-secondary institutions more broadly, efforts should be made to enhance the representation of racialized staff. Institutions should consider implementing more equitable hiring and promotion processes for faculty, as current processes present barriers for faculty of racialized identities (Povey et al., 2022). Increasing representation among teaching staff could help to foster the need satisfaction of racialized students (Bunce et al., 2021).

Limitations

Although the current study presents novel findings, there are certain limitations to the study's design. First, the self-report measures in this study present a limitation. Students may have reported higher need satisfaction and lower need frustration in order to present themselves more favourably. To overcome social desirability bias, future research could benefit from gathering perspectives of professors on the BPNs of racialized and white students. Second, this study did not examine differences between students of different years of study. Research suggests that perceptions of discrimination from professors increases for racialized students in upper years (Del Toro & Hughes, 2020), which could impact students' perceived need satisfaction and frustration. Future research could examine differences in these variables across year of study or employ a longitudinal design to capture changes over time. Lastly, and perhaps most importantly, sample size concerns prevented the investigation of differences between racialized groups. Given that students of differing racialized identities have unique experiences with stereotypes, discrimination, systemic racism, colonization, and immigration, it is important that future studies examine groups separately to identify any differences in their distinctive experiences.

Conclusion

To the best of our knowledge, this study was the first to examine differences in basic psychological need satisfaction and frustration between white and racialized post-secondary students. Results demonstrated that students of racialized identities perceived lower autonomy satisfaction, lower competence satisfaction, and higher relatedness frustration than white students. These findings present important implications for higher education institutions. Both institutions and faculty members need to recognize the diverse needs of their student population and adjust the current learning environments to be more supportive of these needs. By supporting the needs of racialized students, post-secondary institutions may be able to improve the overall well-being and academic success of these students.

Acknowledgements

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