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Self-esteem and Psychological Distress of Students with Special Educational Needs in Higher Education

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In recent years, an increasing number of students with special educational needs (SEN) continue their studies into tertiary education. Students with SEN undergo a transition process that reveals more vulnerabilities and make additional efforts to cope with the challenges in higher education. This study investigated the self-esteem and psychological distress of students with SEN in higher education, drawing on secondary analysis of data gathered by the Annual Student Survey of one higher education institution in Hong Kong that included background information (e.g., demographic characteristics, SEN status, family income, etc.) and measures of self-esteem and psychological distress of depression, anxiety, and stress. Students were assessed at the beginning of an academic year (designated T1) and again at the beginning of the following academic year (designated T2). The results showed that the self-esteem of students with SEN deteriorated significantly at T2. Symptoms of depression, anxiety, and stress also increased. The findings strongly suggest that supportive services should be provided for students with SEN to help them face the challenges of transition from secondary to tertiary education and assist them in coping with the challenges of higher education.

Keywords: Inclusive education, psychological stress, self-esteem, special educational needs, higher education

Introduction

Sin et al. (2012) list five core values of inclusive education (IE) in their study on equal learning opportunities for students with special educational needs (SEN) in Hong Kong:

- (i) It provides SEN students with equal learning opportunities;
- (ii) It is the human right of SEN students to learn in regular class;
- (iii) IE is an embodiment of social justice;
- (iv) IE is a symbol of civilization;
- (v) Excluding SEN students from regular classes is discriminatory.

The core values of IE, as listed above, are very much value-driven and are not easy to reject or deny (see Haug, 2017). Some advocates of IE (e.g., Booth, 1996; Rustemier, 2002) contend that research is irrelevant to the implementation of IE and there is no need for empirical support for IE. They argue the crucial point is to promote IE without questions. However, researchers **who adhere to the principles of evidence-based research evaluate the effectiveness of IE implementation empirically**. Evaluation studies investigating the academic achievement and well-being of students with SEN in IE settings report mixed results.

Outcome evaluation of IE

In a review of literature on the efficacy of IE, Blankenship et al. (2005) selected research that included students with mild disabilities studying in primary and secondary schools, including studies using various methodologies to increase the generalizability of the review findings. The review showed equivocal results regarding the effectiveness of IE. There was no consensus among studies regarding the effectiveness of IE, leading the authors to recommend further studies to confirm the efficacy of IE.

Lindsay's (2007) meta-analysis also reviewed empirical studies on IE effectiveness published in eight renowned special education academic journals, focussing on studies that reported evidence-based outcomes such as students' academic performance, social relationships, and self-concept. Of the 1373 articles published between 2001 and 2005, only 14 papers (i.e., merely 1.02%) were identified as adopting evidence-based outcome measures. Regrettably, careful analysis of these papers failed to indicate any clear endorsement of IE effectiveness.

Other researchers' literature reviews also failed to find consistent and satisfactory academic achievement of students with SEN in IE settings. For example, Heward (2009) reported mixed school performance results of students with SEN in regular mainstream schools. He cited reports suggesting that students with SEN achieved better school performance in inclusive regular classrooms than in special schools (e.g., Baker et al., 1995; Rea et al., 2002). However, Heward also cited studies that reported poorer school performance of students with disabilities in regular classrooms (e.g., Schumm et al., 2000). The effects of IE on the school performance of students with IE are not clear-cut. Wong-Ratcliff and Ho (2011) also found mixed results in the academic achievement of students with SEN in inclusive classrooms. Furthermore, they reported that students with SEN tended to have lower self-concept and poorer self-esteem. The ability of IE to help raise the academic achievement of students with SEN or improve their social relationships was also uncertain.

Thus far, there is no consistent evidence to show whether students with SEN in a regular school setting have a better self-concept than those attending special education schools. Conversely, studies generally show that the academic self-concept of students with SEN is lower compared with their peers without SEN (Bear et al., 2002; Zeleke, 2004). Indeed, the placement of students with SEN in regular mainstream schools appears to jeopardize their self-esteem profoundly. Elbaum's (2002) meta-analysis of 36 research reports in which 65 different placement comparisons were made examined the impact on the self-concept of students with learning disabilities. Students with SEN generally had poor self-esteem. Other researchers (Cara, 2013; Ntshangase et al., 2008) found that students with disabilities experienced difficulties achieving satisfactory academic performance, likely contributing to poor self-esteem.

El-Dawa and Hammoud (2015) showed that students with SEN tended to have histories of repeated failure in school work. They were likely to feel that academic outcomes were beyond their control and perceived themselves as less competent than their peers in regular schools. Students with SEN were usually identified as needing special support to enhance their academic performance. The identification and labeling process led to greater awareness of their academic challenges, thus negatively affecting their self-concept.

Besides poor academic performance and lower self-concept, difficulty in gaining peer acceptance in the mainstream school setting was also a challenge faced by many students with SEN. Schwab (2015) found that students with SEN were at risk of being less socially accepted by their classmates. Similarly, de

Boer and Pijl (2016) reported that students with SEN in mainstream school settings had poor relationships with their peers.

Students with SEN are more prone to dislike the time they spend at school than students without SEN (McCoy & Banks, 2012; Skrzypiec et al., 2016). Research studies investigating psychological distress and social outcomes of students with SEN suggest that they generally had poorer social and affective outcomes than their peers without SEN. Such poorer outcomes were observed in both primary and secondary schools (Frederickson et al., 2007; Warnock & Norwich, 2010). In their IE literature review, Wong-Ratcliff and Ho (2011) also reported that inclusive students had poorer academic performance, experienced psychological distress and felt negatively about their experiences in mainstream classrooms. They showed poorer outcomes in affective functions and social relationships.

Implementation of IE in Hong Kong

Since the 1970s, long before the above studies reported academic, social and affective outcomes of IE, the education policy of the Hong Kong government had been to promote the integration of students with disabilities into mainstream classrooms. However, implementation of this policy has been hindered by the elitist system, highly valued by students, parents, and teachers (see Sharma & Chow, 2008). The integration of students with SEN into mainstream schools was re-endorsed in Hong Kong in 1995 following the UNESCO Salamanca Statement (UNESCO, 1994). In 1996, the Hong Kong Disability Discrimination Ordinance became operative; the then Education Department (renamed the Education Bureau) announced that all schools had an obligation to admit students with SEN and provide them with appropriate support. The aim was to allow the full development of the potential of students with SEN. In 2004, the Hong Kong Government initiated the whole-school approach of integrated education in which all school staff engage to promote the optimum development of students. It may be noted that the term “integrated education”, rather than “inclusive education”, is officially used by the Education Bureau.

Though the “whole-school approach to cater for diversity” was implemented to provide services for students with and without SEN in mainstream schools, the Education Bureau adopted a dual-track system to allocate students with disabilities to mainstream schools. Only students with mild and moderate learning disabilities are encouraged to receive education in mainstream schools, while students with severe learning disabilities are referred to special schools for intensive support services. Referral of students to special

schools is based on the recommendation of educational specialists and with parents' consent.

The Education Bureau organizes in-service training courses at three levels - Basic, Advanced, and Thematic - to equip primary and secondary school teachers with professional knowledge enabling them to provide professional services to support students with SEN. Trained teachers are supposed to train their colleagues to engage in IE practice. However, the duration of the training courses is relatively brief (ranging from 60-72 hours), considered inadequate for preparing teachers to engage in inclusive practice (Forlin, 2012). In an exploratory study of Hong Kong students' affective and social outcomes in a mainstream class, Lam and Yeung (2005) found that students with SEN experienced high levels of anxiety about school life. They were dissatisfied with their school achievement, felt that they were not trusted or accepted and perceived relationships with their peers and teachers to be poor. Furthermore, students with SEN had a very poor self-concept. Lam and Yeung believed that the negative self-concept (reflected in the academic and social domains) was partly due to the so-called "positive discrimination" shown by teachers and students without SEN. Being accepted because of their inferior status or perceived as needing sympathy and help may negatively impact students with SEN, resulting in poor self-concept and encouraging them to maintain psychological distance from their social environment. Consequently, students with SEN in the IE setting are unable to build and maintain satisfactory relationships with their teachers and peers.

The integration of students with SEN into regular classes in mainstream schools has been implemented for more than two decades in Hong Kong, with no satisfactory progress. Teachers largely remain focused on students without SEN; they have been unable to appreciate the idea of the whole-school approach to integrated education. Local educators generally felt that the implementation of IE was far from satisfactory (see Wong-Ratcliff & Ho, 2011).

In parallel with the unsatisfactory implementation of the whole-school approach to IE, teachers encountered difficulties teaching students with disabilities at the primary and secondary levels. They felt that they could not cope with the diverse disabilities of students with SEN. According to Ho and Lam (2020), teachers' negative feelings were mainly due to insufficient professional training in teaching students in inclusive classes.

In the meantime, despite the unsatisfactory implementation of IE in primary and secondary schools, increasing numbers of students with SEN complete their secondary education and continue their studies in higher education. However, most students with SEN continue their studies in private self-financing higher education institutions, and very few gain admission to publicly-funded universities.

Higher education in Hong Kong

Higher education in Hong Kong can be divided into publicly-funded universities and private self-financing institutions. Publicly-funded universities attract students with better secondary school public examination results, whereas private self-financing higher education institutions admit students with less satisfactory results. Understandably, the academic status of private self-financing institutions is inferior to that of publicly-funded universities. Currently, there are eight publicly-funded universities and nine private self-financing higher education institutions in Hong Kong. Based on Education Bureau (2021) statistics, fewer than a quarter of secondary school graduates (20.7%-23.5% between 2017 and 2020) secured places in publicly-funded universities, while more than half (53.3%-56.5%) pursued their studies in private self-financing higher education institutions. The remaining secondary school graduates pursued their studies overseas or discontinued formal education. Table 1 shows the statistics of students enrolled in publicly-funded universities and private self-financing higher education institutions for 2017 – 2020.

Table 1 Statistics on Students in Public Universities and Institutions of Higher Education 2017-2020

Year	Student total	Universities Yr. 1 students	HE Institutions actual intake	S.SEN total	S.SEN in Universities	S.SEN in HE Institutions
2020	41685	11,944 (28.7%)	29,741 (71.3%)	1196	152 (12.7%)	1044 (87.3%)
2019	44829	12,289 (27.4%)	32,540 (72.6%)	1129	169 (15.0%)	960 (85.0%)
2018	44982	12,217 (27.2%)	32,765 (72.8%)	969	145 (15.0%)	824 (85.0%)
2017	44680	12,494 (28.0%)	32,186 (72.0%)	818	141 (17.2%)	677 (82.8%)

Note. Universities = publicly-funded universities, HE Institutions = self-financing institutions of higher education, S.SEN = students with SEN

The total number of students with SEN in publicly-funded universities and private self-financing higher education institutions between 2017 and 2020 varied from 818 to 1196. A very large proportion (82.5%-87.3%) of students with SEN enrolled in private self-financing higher education institutions; only 12.7%-17.5% were accepted by publicly-funded universities.

The first year of transition from secondary to tertiary level is often a difficult process for many students and is particularly challenging for students with SEN because it is a period when more vulnerabilities are revealed. It is taxing because of the stress associated with academic demands and social adjustment in higher education (Hong, 2015; Jacklin et al., 2007). The perception of inferiority of students in private self-financing higher education institutions and their feelings of being academically weaker lead to lower self-concept (see Kember, 2010; Ng & Galbraith, 2016). As a result, they may also experience various psychological distress symptoms. The psychosocial adjustment of students in private self-financing higher education institutions generates considerable concern to many education professionals (Kamber, 2010; Ng & Galbraith, 2016; Wong, et al., 2017). Although there is abundant research regarding students with SEN in primary and secondary schools, this is not reflected at the tertiary education level (Zabeli et al., 2021).

Objectives of the current study

This study aimed to examine the psychological outcomes for students with SEN following completion of the first year of study in a private self-financing higher education institution in Hong Kong. Students' self-esteem (personal source of resilience in coping with stress) and psychological distress (operationalized as symptoms of depression, anxiety, and stress) were evaluated.

Methodology

A longitudinal approach was adopted to evaluate changes in self-esteem and psychological distress (depression, anxiety, and stress) in students with SEN. Data were compared with students without SEN studying at the same institution.

Materials and data collection

Data were drawn from the institution's Annual Student Survey, collected at the beginning of the 2018/2019 academic year and again at beginning of the following academic year. The survey questionnaire comprised items on

demographic characteristics, area of study, SEN status, type of disability, recreation activities preferences, part-time employment, etc. Particularly relevant to the present study were information on SEN status, type of disability, and test scores on two psychological measures, the *Rosenberg Self-esteem Scale* and the *Depression, Anxiety and Stress Scale - 21 Items (DASS-21)* used by the institution as evaluation tools to monitor students' mental health status during their study at the institution. Analysis of the data comprised part of a research project on students with SEN approved by the Research Ethics Committee of the institution to which the first two authors are affiliated.

Measurements

The Rosenberg Global Self-esteem Scale

The *Rosenberg Global Self-esteem Scale* is a 10-items self-evaluation scale measuring students' global self-esteem (Rosenberg, 1965), a commonly used measure in psychosocial studies. The scale consists of five positive items (e.g., "I feel that I have a number of good qualities", "I am able to do things as well as other people) and five negative items (e.g., "All in all, I am inclined to feel that I am a failure", "I feel I do not have much to be proud of"). Responses are rated on a 4-point Likert scale (1 = strongly disagree, 4 = strongly agree). Negative items are reverse-scored, and the total scores range from 10 to 40, with higher scores indicating higher levels of self-esteem.

The Chinese version of the *Rosenberg Self-esteem Scale* demonstrated satisfactory reliability when applied to adolescents and older adults in local settings, with Cronbach's α ranging from .70 to .84. Its significant correlation with measures of anxiety, functional status, and parent-child relationships support its construct validity (Chou & Chi, 2001; Shek, 1998).

Depression, Anxiety and Stress Scale - 21 Items (DASS-21)

The *DASS-21* developed by Lovibond and Lovibond (1995) comprises 21 items measuring psychological distress on three subscales, each consisting of seven items, assessing depression (e.g., "I felt that I had nothing to look forward to", "I couldn't seem to experience any positive feeling at all"), anxiety (e.g., "I was worried about situations in which I might panic and make a fool of myself", "I felt scared without any good reason"), and general stress symptoms (e.g., "I found it difficult to relax", "I tended to over-react to situations"), respectively. Respondents are asked to rate each item on a 4-point scale (0 = "Never - did not apply to me at all"; 1 = "Sometimes - applied to me to some degree, or some of the time"; 2 = "Often - applied to me to a considerable degree, or a good part of

time”; 3 = “Almost always - applied to me very much, or most of the time”). The total score of each subscale ranges from 0 to 21, with higher scores indicating a higher level of psychological distress.

DASS-21 has been used in clinical and community samples and possesses well-established psychometric properties (Antony et al., 1998). It is a valid screening tool for identifying individuals at risk of mental illness. The scale has been translated into Chinese and applied to studying the mental health status of nurses and tertiary education students in Hong Kong with meaningful and significant results (Cheung & Yip, 2015; Wong et al., 2006). More recently, the scale was applied to study psychological morbidity among university students in Hong Kong (Li et al., 2021), with each of the subscales demonstrating highly satisfactory reliability (Cronbach’s α of the Depression, Anxiety, and Stress subscales .90, .86, and .88 respectively).

Re-evaluation of psychometric properties of measures

The psychometric properties of the two measures were re-evaluated using Student Survey data gathered at the beginning of the 2018/19 academic year, and confirmed the highly satisfactory reliability of their internal consistency (see Table 2).

Table 2 Reliability of the Rosenberg Self-esteem Scale and *DASS-21*

	No. of items	Item-total Correlation	Cronbach’s α
Self-esteem	10	.38 - .71	.86
<i>DASS-21</i>	21	.52 - .75	.95
Depression	7	.57 - .74	.88
Anxiety	7	.49 - .70	.84
Stress	7	.52 - .74	.87

The construct validity of the two measures was also demonstrated by the expected moderate negative correlation between self-esteem and the three *DASS-21* subscales, depression, anxiety, and stress ($r = -.43, -.36,$ and $-.31,$ respectively, $p < .01$).

Statistical analysis

Descriptive statistics (frequencies, percentages, means, and standard deviations) are used to present demographic characteristics and participants’ test scores. Two-way repeated measures ANOVA was performed to examine if there were significant changes in self-esteem and psychological distress (depression, anxiety, and stress) among students with SEN over the period of an academic year. A significant interaction effect (F -value of Time x Group) would indicate

that changes over time were dependent on SEN status. Separate multiple post hoc comparisons using Tukey HSD were used to evaluate differences in group means. The Reliable change index was computed to examine changes of test scores of individual students to identify the percentages of students experiencing positive and negative outcomes. The chi-square test was performed to study the pattern of individual change between students with and without SEN.

Results and Discussion

Participants characteristics

Based on SEN status indicated by the Student Survey, students were divided into two groups, students with and students without SEN. No significant differences were observed in gender or age (see Table 3).

Table 3 Participants' demographic characteristics

		Students with SEN (N=35) Frequency (%)	Students without SEN (N=627) Frequency (%)	χ^2
Gender:	Male	10 (28.6%)	196 (31.3%)	0.02
	Female	25 (71.4%)	431 (68.7%)	
Age:	18-24	24 (75.0%)	458 (76.6%)	0.04
	25-34	7 (21.9%)	123 (20.6%)	
	≥ 35	1 (3.1%)	17 (2.8%)	
Religion:	None	22 (62.9%)	464 (74.0%)	1.58
	Affiliated	13 (37.1%)	163 (26.0%)	

Although a greater proportion of students with SEN reported religious affiliation, this was not significantly different from students without SEN. In terms of type of disability, students with SEN included 17 (48.6%) students with learning and developmental disabilities, 13 (37.1%) students with mental and emotional problems, and 5 (14.3%) students with physical and sensory impairments.

All students were assessed at the beginning of the first academic year (designated T1) and again at the beginning of the second academic year (designated T2). Data on students with and without SEN on self-esteem and *DASS-21* (depression, anxiety, and stress) are presented in Table 4. Two-way repeated measures ANOVA was run to examine if different changes were significant between students with and students without SEN. Separate post hoc comparisons (Tukey HSD) were conducted to evaluate differences between group means.

Table 4 Comparison of outcomes between students with and without SEN

	Students with SEN (N = 35)		Students without SEN (N = 627)		Time x Group F (1, 660)
	T1	T2	T1	T2	
	M (SD)	M (SD)	M (SD)	M (SD)	
Self-esteem	30.09 ^a (4.38)	27.88 ^b (4.82)	29.32 ^{ab} (3.42)	29.28 ^{ab} (3.63)	11.74***
Depression	3.00 ^a (3.40)	5.57 ^b (5.28)	2.55 ^a (3.03)	3.06 ^a (3.47)	9.39**
Anxiety	4.66 ^a (3.76)	6.49 ^b (5.40)	3.04 ^c (3.13)	3.11 ^c (3.46)	7.01**
Stress	4.91 ^a (3.89)	7.00 ^b (5.15)	4.00 ^a (3.67)	4.29 ^a (3.93)	6.37*

Note. Means not sharing common superscripts are statistically significant (based on Tukey HSD);

degree of freedom of *F*-value varied slightly because of missing data; * $p < .05$ ** $p < .01$; *** $p < .001$

Self-esteem of students with and without SEN

As Table 4 shows, the self-esteem of students with SEN declined significantly after a year of study at the institution (Cohen's $d = 0.48$), whereas the self-esteem of students without SEN showed no significant changes. A similar trend was observed in the three *DASS-21* subscales. Symptoms of depression, anxiety, and stress of students with SEN increased significantly (Cohen's $d = 0.59, 0.40,$ and 0.46 , respectively). No significant changes were observed among students without SEN.

It should be noted that at the beginning of the academic year (T1), students with SEN obtained a score of 30.09 on the *Rosenberg Self-esteem Scale*. This was comparable to students without SEN and also similar to young people transitioning to adulthood participating in a community study conducted in Hong Kong (Ng & Boey, 2016). The decrease in self-esteem is consistent with findings reported by Elbaum (2002), who found that the self-esteem of students with disabilities was profoundly jeopardized as a result of placement in regular mainstream schools.

In accounting for the decline of self-esteem of students with SEN, it is relevant to note that students with SEN tend to perceive themselves as inferior compared to their peers without SEN. Their feelings of being weaker academically could be a factor that results in lower self-esteem (El-Dawa & Hammoud, 2015). In this regard, a process of social comparison with peers may be at play. Szumski and Karwowski (2015) observed that unsatisfactory academic achievement was associated with poor academic self-concept, and

students with SEN were vulnerable to social comparison effects leading to lower academic self-concepts.

Students with SEN are often identified as needing academic and social support to cope with academic performance. Such a labeling process may cause greater awareness of their academic weakness and consequently reducing their self-esteem.

Self-esteem is a source of resilience that helps students cope with academic stress and challenges in higher education. The decline of self-esteem implies that the personal coping resources of students with SEN are lower than when they first joined the institution. With limited coping resources, they would likely feel inadequate in handling the academic workload in the coming year of study. Previous studies show that self-esteem contributes to various educational outcomes. Rueger and George (2017) suggested an association between poor self-esteem and dysfunctional attribution style. Fang (2016) reported that students with a lower level of self-esteem tended to have lower academic performance aspirations. Furthermore, the relationship between self-esteem and academic performance could well be reciprocal (see Seaton et al., 2014). Students with SEN could fall into a vicious cycle of poor self-esteem and lower academic achievement.

Self-esteem is a pervasive characteristic that may affect other aspects of the lives of students with SEN. Individuals with poor self-esteem are more likely to feel incompetent and worthless, overwhelmed with negative thoughts, and constantly needing recognition (Esmaeil et al., 2014). They function at low levels of personal health and stress management (Mann et al., 2004). Poor self-esteem is associated with poor physical health, including less frequent physical activities and poor sleep habits (Park et al., 2016). Juth et al. (2008) reported that poor self-esteem is associated with more negative affect, greater stress, and greater psychological symptoms in daily life.

Distress of students with and without SEN

The psychological distress experienced by students with SEN in our study is similar to the affective outcomes described by Juth et al. (2008). After a year of study in an IE setting, depression, anxiety, and stress symptoms among of students with SEN increased significantly. Students without SEN experienced no significant increase in symptoms at T2. Students with SEN appear not to benefit from the learning opportunity experience. On the contrary, they were negatively affected in a mainstream higher education setting. The environment

of the inclusive institution was not conducive to resolving their psychological distress. Rather, IE merely increased depression, anxiety, and stress symptoms.

Seale et al. (2015) highlighted students with SEN experience great academic stress in higher education institutions. They commonly report working harder than other students because of having to manage both their disability and academic stress in higher education (Moriña, 2017). Furthermore, students with SEN report that they experienced some faculty members' negative attitudes who did not adequately adapt teaching materials for IE practice. Sometimes, IE rules and policy were not fully enforced. Thus, students with SEN may be frustrated in learning in an IE setting. The barriers could also cause them psychological distress.

Psychological distress, as indicated by depression, anxiety and stress, has been found to influence other aspects of life. For example, associations with academic dissatisfaction (Tran et al., 2022), lack of self-compassion, critical self-judgment, isolation, and suicidal behavior (Marsh et al., 2017) have been identified. It is also related to the development of chronic physical illness (McLachlan & Gale, 2018). The negative outcomes of IE appears to be pervasive, which may affect the general quality of life of students with SEN.

The above results and discussion focus on comparing students with and without SEN. Below, we look into changes experienced by individual students resulting from IE. The reliable change index (RCI) was computed to examine the change self-esteem and psychological distress of individual students. RCI is a ratio in which the numerator represents the difference between T2 and T1, and the denominator is the standard error of the measurement of difference (see Jacobson & Truax, 1991; Maassen, 2000). Table 5 shows the results of the RCI analysis.

Unlike ANOVA, that focuses on group differences, RCI presents the outcome of IE in terms of the experience of changes in an individual. Individual students' change scores were classified into five categories, from decrease significantly (designated -2) to increase significantly (designated +2) (See Table 5).

Table 5 Percentage of students in each category of change

	Students with SEN (N=35)				Students without SEN (N=627)					
	-2	-1	0	+1	-2	-1	0	+1	+2	
Self-esteem	25.7	34.3	11.4	17.1	11.4	11.0	26.6	23.1	30.0	9.3
Depression	8.6	11.4	14.3	34.3	31.4	10.5	21.9	23.1	26.6	17.9
Anxiety	5.7	28.6	8.6	28.6	28.6	10.7	27.3	23.0	27.6	11.5
Stress	11.4	17.1	14.3	20.0	37.1	12.9	24.2	19.0	25.5	18.2

Note. Five categories of change: -2 = decrease significantly, -1 = decrease not significantly, 0 = no change,

+1 = increase not significantly, +2 = increase significantly

These results show that the percentage of students with SEN whose self-esteem decreased and symptoms of psychological distress increased was higher than that of students without SEN. However, there were positive changes among students with SEN.

Around ten percent of students with SEN significantly increased their self-esteem (+2) and 5.7% to 11.4 % decreased psychological symptoms significantly (-2) after a year of study in the IE setting. On the other hand, students without SEN encountered significant decreases in self-esteem and increases in psychological distress.

Categories of change were clustered into three groups to avoid the expected frequency of a category smaller than 5 using Chi-square statistics to test the pattern of individual change between students. Although Table 6 shows a similar trend to that evident in Table 4, it presents data from a different perspective, drawing attention to the substantial proportion of students with SEN who experienced positive changes and students without SEN experiencing negative changes after a year of study in an IE setting.

Table 6 Percentage of students in each category of change

	Students with SEN (N=35)			Students without SEN (N=627)			χ^2
	-2/-1	0	+1/+2	-2/-1	0	+1/+2	
Self-esteem	60.0	11.4	28.5	37.6	23.1	39.3	7.26*
Depression	20.0	14.3	65.7	32.4	23.1	44.5	6.02*
Anxiety	34.3	8.6	57.2	38.0	23.0	39.1	5.92+
Stress	28.5	14.3	57.1	37.3	19.0	43.7	2.43

Identification of students experiencing negative changes and positive changes and investigation of factors potentially associated with these changes would provide useful information for rendering supportive services for students with and without SEN to cope with the academic stress and challenges of higher education.

Limitations of the study

This study provides useful information for teachers in their engagement in IE practice. Nonetheless, some limitations should be considered so that improvements in future studies can be made. The study was based on secondary analysis of data collected by a higher education institution's Annual Student Survey. Accordingly, the researchers had no influence over the variables included in the survey. Variables relevant to the objectives of this study were selected from existing data. Some variables of research interest, e.g., barriers related to the attitudes of teachers and students without SEN towards people with disabilities, attitudes towards IE, etc., may be influential, and their possible moderating effects are worth investigating in future studies to facilitate the implementation of IE.

Information regarding actual academic performance (e.g., GPA) is particularly useful in studying its relationship with self-esteem and psychological distress. Previous studies have reported mixed results on the academic achievement of students with SEN in primary and secondary schools (Heward, 2009). It is worth clarifying these issues in higher education institutions by examining actual academic achievement and its relationships with self-concept and other outcomes of IE. Future studies including data on students' GPA should shed light on how students' actual academic performance affect their self-esteem and psychological distress.

In this study, the number of students with SEN was relatively small, thus preventing within-group analysis to investigate the possible effects of different types of disability. The authors' preliminary analysis of a larger data set from an online survey revealed that students with learning and developmental disabilities and students with mental and emotional problems had a significantly lower academic self-concept than students with physical and sensory impairments. The possible differential effects of types of disability provide information that teachers can use to design better-targeted education programs and would merit future systematic investigation.

Conclusion and recommendations

Notwithstanding these limitations, the study data provide empirical evidence that after a year of study in an IE setting, students with SEN had lower self-esteem and exhibited higher levels of depression, anxiety, and general stress than their peers without SEN. Studying in an inclusive higher education setting failed to resolve the psychological distress of students with SEN. Contrarily, inclusive higher education institutions present great challenges to students with SEN. Effective supportive services should be provided to help them face the challenges in higher education, cope with the academic stress they may encounter in IE, expand their career prospects, and improve their quality of life.

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