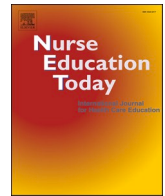




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Research article

Academic self-efficacy, resilience and social support among first-year Israeli nursing students learning in online environments during COVID-19 pandemic

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ABSTRACT

Background: Academic self-efficacy (ASE) has been found to be an important motivator for academic success among nursing students. The associations between ASE, resilience and social support have not been fully explored among nursing students, especially those in their first year who are learning online.

Objectives: To explore a) the associations between ASE, resilience and social support among first-year nursing students learning in an online learning environment; and b) students' views regarding the difficulties they have encountered and the available assistance.

Design and methods: A cross-sectional survey design on a sample of 222 undergraduate first-year Israeli nursing students. Questions were uploaded in the format of a commercial internet survey provider ([Qualtrics.com](https://www.qualtrics.com)) and distributed through the university's online learning platform.

Results: Positive correlations were found between ASE and resilience and social support. Significant differences were found in the research variables according to the students' gender, cultural group and their perceived difficulty in studies. Resilience, social support, perceived difficulty in studies and being a female explained 31% of the students' variance in ASE.

Conclusions: Nurse educators should develop and promote strategies to enhance students' resilience and perceived social support. These have the potential to significantly improve students' ASE also in online environments. In addition, faculty should promote the preparation of online learning environments in accordance with students' needs and proficiencies.

1. Introduction

Nursing students typically experience more academic challenges and stress than other students (Labrague et al., 2017; He et al., 2018). First year nursing students cope with the additional stress and adjustment difficulties of transitioning to higher education which may negatively impact their academic achievement (McDonald et al., 2018). Academic achievement has been found in previous studies to be associated to students' ASE; the latter is considered fundamental for academic performance (Hodges, 2008).

Due to the global spread of COVID-19, the Israeli government implemented large-scale social restrictions, including closing schools and universities. This meant that from May 2020, university studies were fully transferred to an online format. This enabled the continuity of studies while maintaining the social distance restrictions. However,

currently, there is little evidence to suggest that nursing students who were then challenged with new technological, educational and social difficulties may have had their ASE impaired (Rohmani and Andriani, 2021; Bdair, 2021). ASE and perceived social support have been identified in the literature as attributes to the development of resilience among nursing students, mostly in the clinical context (Stephens, 2013; Walsh et al., 2020). Yet, there is a paucity of studies exploring the associations between social support and resilience, and ASE among first-year nursing students. Understanding students' perceived ASE in their first year of studies while learning in an online environment is important to promote their academic success.

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2. Background

2.1. Perceived ASE and online learning environments

ASE is defined as students' self-perceived confidence in their ability to accomplish their planned educational goals (Bandura, 2001). It is grounded in Bandura's self-efficacy theory, which assumes that human achievements depend on the interactions between one's behaviors, beliefs, and environmental conditions. Previous studies have indicated that ASE significantly predicts academic performance among nursing students and functions as an internal motivator for dealing with academic challenges and the achievement of goals (McLaughlin et al., 2008; Silvestri, 2010). Students with high ASE tend to accept difficult and challenging tasks, they demonstrate greater levels of motivation and persevere in the face of difficulties, compared to students with low ASE who tend to be unconfident in their educational capabilities and have difficulty meeting their tasks (Bandura, 2001; McLaughlin et al., 2008; Satici and Can, 2016). Self-efficacy perceptions can change due to daily environmental, cognitive, or behavioral effects (Bandura, 2001). The sudden transition to an online environment may be an example of such a change.

The findings of recent studies conducted among first-year university students indicate that students believe that the changes in their learning experiences following the COVID-19 pandemic will negatively impact their academic performance (Aguilera-Hermida, 2020; Talsma et al., 2021). Among nursing students, and specifically first-year students, there is a paucity of studies exploring this subject. The little evidence found demonstrates a negative association between ASE and online learning (Rohmani and Andriani, 2021; Ko and Han, 2021).

2.2. Perceived ASE and resilience

Resilience is defined as "an interactive concept that refers to a relative resistance to environmental risk experiences or the overcoming of stress or adversity" (Rutter, 2006). Moreover, it is considered as a personal trait that can be developed or enhanced through life by using specific strategies (Stephens, 2013). Resilience has been widely explored within the caring professions and found to be a contributing factor in individuals' ability to adapt to stressful workplace environments, develop effective coping strategies and improve wellbeing (Cleary et al., 2018). It is therefore considered important for practicing nurses and nursing students and recommended as an integral part of nursing education programs (Walsh et al., 2020). Among nursing students, a higher sense of resilience was found to significantly influence academic success, perseverance and the dropout rate from studies (Van Hoek et al., 2019; Hwang and Shin, 2018). A recent literature review aimed at exploring the concept of resilience and the promotion of resilient practices among nursing students, emphasized the role of self-efficacy as one of the main characteristics of resilient behavior (Walsh et al., 2020). Indeed, high levels of resilience have been indicated as increasing the levels of self-efficacy (Cuartero and Tur, 2021). Accordingly, by promoting and strengthening students' sense of resilience, their perceived ASE may improve.

2.3. Perceived ASE and social support

Perceived social support is defined as the individual's perception of others as an available source for effective help when needed (Bagci, 2018). These sources usually include significant relationships. For nursing students, social support can be provided by their families, friends, peers and faculty members, and is a central external factor in influencing their academic success and retention (Laack, 2013). Studies conducted recently indicate a statistically significant positive association between ASE and perceived social support. Consequently, promoting and strengthening social support can improve students' ASE (Park and Jeong, 2020; El-Sayed et al., 2021). Additionally, perceived

faculty support has been found to be related to persistence in nursing studies and academic success (Shelton, 2012). Perceived social support (mainly from peers and faculty members) has also been found to contribute to the development of resiliency in nursing students (Sweeney, 2021; Caton, 2021).

Based on the above, the aims of the current study were to i) explore the associations between ASE, resilience and social support among first-year nursing students learning in an online environment; and ii) explore their views regarding the difficulties they face and what could have helped them succeed in their studies.

3. Methods

3.1. Design and setting

The current study utilized a descriptive, cross-sectional design. The online survey included close questions and two open-ended questions. This approach has enabled the discovery of additional and complementary explanations regarding students' perceived ASE and difficulties with online learning.

3.2. Sample

All first-year undergraduate nursing students at a major Israeli university (222 students) were invited to participate in the study. Of these, 186 returned completed questionnaires (response rate of 83.7%). First-year students were selected since they first experienced online academic studies. All participating students answered an online survey that included close questions and two open-ended questions. The required sample size was obtained by means of the WINPEPI COMPARE2 program. The sample size required for achieving a power of 0.90 and α of 0.05 was 175 participants.

3.3. Instrument

A structured questionnaire written in Hebrew including five sections:

- A) *The participants' sociodemographic data and educational profile.* Sociodemographic data included age, gender, country of birth, religion, marital status and mother tongue. The educational profile consisted of four additional items: 1) rating their proficiency in English (writing + reading) on a 3-point scale: 1 = very good, 2 = medium, and 3 = low; 2) Past experience in distance learning (yes / no); 3) Effective Internet access during the semester (yes / no); and 4) Rating their perceived level of difficulty in studies to date (on a 10-point scale: 1 = very easy to 10 = very difficult).
- B) *Personal resilience:* Resilience was measured by the shortened version of the 10-item Resilience Scale (Campbell-Sills and Stein, 2007) and translated into Hebrew by Fridenzon (Fridenzon, 2011). Respondents were asked to relate to their feelings as students over the last month on a 5-point scale from 0 (not true at all) to 4 (true most of the time). An overall score was calculated according to the mean score of all items, where a higher mean indicated higher resilience. The Cronbach's alpha score in a previous study (Sigalit et al., 2017) was 0.88. The Cronbach's alpha score in the present study was 0.81.
- C) *Social support:* This section was developed and validated by the author in an earlier study (Warshawski et al., 2018). The questionnaire consists of five items describing five different possible sources of social support: immediate family members, extended family members, friends prior to nursing studies, present classmates, and social networks. Respondents were asked to rank to what extent they perceive receiving social support from each source, on a 5-point scale from 0 (never) to 5 (always). For example, "To what extent do you receive social support from

present classmates?”. Cronbach's alpha in an earlier study (Zimmerman et al., 1992) was 0.74. The Cronbach's alpha score in the present study was 0.75.

- D) *Academic self-efficacy*: This section was based on the Hebrew adaptation of the Zimmerman self-efficacy scale for learning (Zimmerman et al., 1992). The Hebrew version was tested among Israeli college students (Ozeri-Roitberg and Harpez, 2013). The questionnaire includes 11 items describing the perceived ability of students to use self-regulation strategies in tasks that need to be tackled in order to succeed in their studies. For example, “How confident are you that you will be able to summarize and write down the important material in the lessons?”. Respondents were asked to grade their self-efficacy perception regarding the execution of each task on a 7-point Likert scale ranging from 1 = “not at all sure” to 7 = “very sure”. Scores ranged between 11 and 77. All scores were averaged. A higher score indicates a higher ASE. The Cronbach's alpha in previous studies (Ozeri-Roitberg and Harpez, 2013) was 0.88. The Cronbach's alpha in the present study was 0.87.
- E) *Student's views*: This section included two open-ended questions: “What are the main difficulties you have encountered during your studies this semester?” and “What do you think could have helped you succeed in your studies this semester?”

3.4. Procedure

All first-year undergraduate nursing students were approached six weeks before the end of their first semester during December 2020–January 2021. The study was conducted using the format of a commercial internet survey provider (Qualtrics.com). The link to the online questionnaire appeared on a short explanatory page that explained the research purposes. The page was posted in the forum group of first-year students through the university's online learning platform. Participants were assured that the questionnaires were anonymous and that their confidentiality would be maintained. Consent was assumed by submission of the questionnaire.

3.5. Data analysis

Data were analyzed using the SPSS-25 statistical package (SPSS Inc., Chicago, Ill., USA). Statistical significance was considered at $p < .05$. Means and frequencies were used as descriptive statistics for personal characteristics and for the main research variables. Pearson correlation coefficients were calculated to measure the associations between ASE, resilience, social support and personal and educational characteristics. A *t*-test analysis for the independent variables was used to analyze differences between groups of research variables. Stepwise linear regressions were performed to measure the relationship between socio-demographic and educational characteristics, ASE, resilience and social support.

Constant comparative analysis was applied to the two open-ended questions, in which recurring data is identified, marked, and coded. Similar codes are categorized using constant comparisons (Glaser and Strauss, 1967). First, the author read all the answers, compared the data through open coding, identified recurring content, and developed initial categories. Validation of the findings was carried out using the peer debriefing procedure (Lincoln and Guba, 1985). This procedure, which also ensured trustworthiness and credibility, was carried out by presenting the findings and the literature explaining the findings, to two nurse educators familiar with the subject. Findings were discussed and questioned, until agreement regarding analysis was reached in a group discussion (Lincoln and Guba, 1985). Representative quotations were identified to highlight the categories.

3.6. Ethical considerations

The study received the approval of the university's ethics committee.

4. Results

The sample consisted of 186 first-year nursing students, with a mean age of 23.6 ± 4.52 years. Most were women (82.8%) and Israeli born (92.5%). The majority (76.3%) were Israeli-Jewish while the remainder identified as Muslim or other religions. About two thirds of respondents (65.1%) reported their mother tongue as Hebrew, most (68.3%) perceived themselves as proficient in English, and (69.4%) had no prior experiences of distance learning. Regarding students' perceived difficulty in studies, this sample rated the studies relatively difficult ($M = 6.36$, $SD = 1.72$, range-1-10). Table 1 presents the socio-demographics and educational profile of the sample.

The associations between ASE, resilience, social support and perceived difficulty in studies. Table 2 shows significant moderate positive correlations between ASE and resilience ($r = 0.44$, $P < .01$), ASE and social support ($r = 0.36$, $P < .01$), and resilience and social support ($r = 0.31$, $P < .01$). The more students felt resilient and that they received social support from family and friends, the higher they reported their ASE. Furthermore, students' feelings of resilience increased if they felt they were receiving social support from family and friends.

Negative significant correlations were found between ASE and students' perceived difficulty in studies ($r = -0.35$, $P < .01$) and resilience to students' perceived difficulty in studies ($r = -0.27$, $P < .01$). Meaning, students who had low ASE and were less resilient perceived their studies as more difficult.

Differences in the main research variables according to gender, cultural group and past experience with distance learning. As shown in Table 3, significant differences were found in the research variables according to gender, cultural group and past experience with online learning. Women reported a higher ASE than men ($t = -2.9$, $p < .01$), Israeli-Jewish students reported a higher ASE than Israeli non-Jewish

Table 1
Students' socio-demographics and educational profile ($N = 186$).

Variable	M (SD)
Age (years)	23.6 (4.52)
	N (%)
Gender	
Male	32 (17.2)
Female	154 (82.8)
Place of Birth	
Israel	172 (92.5)
Not Israel	14 (7.5)
Religion	
Jewish	142 (76.3)
Muslim	39 (21.0)
Other	5 (2.7)
Relationship status	
In a relationship	73 (39.2)
Not in a relationship	113 (60.8)
Mother tongue	
Hebrew	121 (65.1)
Arabic	42 (22.6)
Other	23 (12.3)
Proficiency in English	
Very good	127 (68.3)
Moderate	55 (29.6)
Low	4 (2.2)
Distance learning in the past	
Yes	57 (30.6)
No	129 (69.4)
Effective Internet access	
Yes	167 (89.8)
No	19 (10.2)

Table 2
Pearson's correlation of study variables (N = 186).

Variable	M (SD)	Range	1	2	3	4
1 Academic self-efficacy	5.0 (0.98)	1-7	1			
2 Resilience	3.71 (0.62)	0-4	0.44**	1		
3 Social support	3.81 (1.06)	0-5	0.36**	0.31**	1	
4 Perceived difficulty in studies	6.36 (1.72)	1-10	-0.35**	-0.27**	-0.17*	1

* p < .05.

** p < .01.

students ($t = 2.54, p < .05$), and students that had prior experience with online learning reported a higher ASE than those who had no experience at all ($t = 2.08, p < .05$). Regarding resilience and social support, Israeli-Jewish students reported a higher sense of resilience than Israeli non-Jewish students ($t = 3.43, p < .01$) and women felt more socially supported by family and friends than men ($t = -2.06, p < .01$).

The relationship between the main research variables and students' socio-demographic and educational characteristics. A stepwise multiple linear regression was conducted with ASE as the dependent variable. The independent variables entered were gender, age, cultural group, resilience, social support and perceived difficulty in studies. The results showed that resilience, social support, perceived difficulty in studies and gender were all related to ASE ($R^2 = 0.31$ and adjusted $R = 0.30$). Accordingly, higher resilience, greater social support and being a female were related to higher ASE, whereas an increased perception of difficulties in studies was related to lower ASE. The results are presented in Table 4.

4.1. Qualitative results

As part of the survey, students were asked regarding their views on online learning and available assistances. Students' answers identified two main themes: "Difficulties encountered during the semester" and "What could have helped me in my studies".

"Difficulties encountered during the semester"

This theme included four codes describing issues students found to be difficult for them during their first semester in nursing studies:

Studies overload: Students described feeling that there was too much material to learn, and not enough time and high pressure to accomplish their assignments: "I study for very long hours...trying to fill the gaps, yet...there is a lot of study material, a lot of assignments and too little time and it just grows with time, it's difficult...I cannot get to everything". (Student 10).

Difficulties in online learning: Students stated they encounter various difficulties while studying in an online environment. These included unreliable internet, difficulties concentrating and understanding learning materials through the Zoom platform and organizing their study materials and schedules. A student wrote: "I had a hard time learning through Zoom, I wasn't used to it, it's different...I couldn't

Table 3

Independent t-tests for the differences between study variables according to gender, cultural group and past experience with distance learning.

Variable	Gender		t	Cultural group		t	Past distance learning		t
	Male	Female		Jewish	Non-Jewish		Yes	No	
Academic efficacy	4.55 ± 1.13	5.09 ± 0.93	-2.9**	5.12 ± 0.88	4.62 ± 1.19	2.54*	5.22 ± 1.11	4.90 ± 1.01	2.08*
Resilience				3.80 ± 0.55	3.39 ± 0.73	3.43**			
Social support	3.46 ± 1.04	3.89 ± 1.05	-2.06*						

Data are shown as mean ± standard deviation.

* p < .05.

** p < .01.

concentrate and understand...its tiring" (Student 11). Another student added: "I couldn't order all the recorded lectures and organize the learning materials so I could learn from them...it's my first semester, I'm not used to it...beyond that, I constantly had disconnections from the internet". (Student 32).

Lack of academic support: Students described an expectation that the academic staff would initiate a personal approach to students in order to examine their academic status and the need for assistance, not just when the student requests: "It feels like the personal touch of one of the faculty is missing...someone with experience that would guide us through our studies...regular conversations or meetings with one of the faculty members...to check out what is happening with our progress...not everyone feels comfortable or knows who to turn to... and it's harder when you're new and not on campus..." (Student 34).

Lack of social interactions between students: The need for social interaction arose from most students' responses. Interaction was needed for shared studying but also for social support, stress reduction and emotional support: "Meetings with other students are very much lacking. All day at home you study alone...I feel the lack of friendships, studying together, supporting each other" (Student 12). Another student added: "Friends help you adapt, especially in the beginning, you see more people like you going through the same thing...there is the opportunity to help each other" (Student 30).

"What could have helped me in my studies".

This theme included three codes describing students' recommendations for their preferred assistance.

"Faculty academic support": As described above, students felt there was inadequate academic support. A recurring proposal included regular meetings (preferably frontal) with an academic advisor, accessibility of lecturers, and additional individual lessons to reinforce the ones given as part of the program: "I think individual lessons or maybe in small groups with faculty could help us; learning online is difficult" (Student 5).

"Promoting social interactions between students": Students recommended the academic staff initiate the development of social interactions between students. For example, by providing a list of contacts to the students, encourage joint work classes and organize meetings through Zoom: "We need to get to know the students even in the class Zoom sessions...We are new and unfamiliar...This is how new friendships are formed; it will help us to acclimatize...consult, help each other, at least in the beginning" (Student 7).

"Financial aid": Financial difficulties also arose from most of the

Table 4

Stepwise linear regression for students' ASE.

Variable	B	SE	β	t	P
Resilience	0.49	0.10	0.31	4.70	0.0001
Social support	0.18	0.06	0.20	3.07	0.002
Perceived difficulty in studies	-0.12	0.03	-0.21	-3.36	0.001
Gender ^a	0.34	0.16	0.13	2.10	0.03

R² = 0.31; Adjusted R = 0.30.

^a Male = 1, Female = 2.

students. Students recommended providing additional information on what financial assistance exists including scholarships and help with finding suitable jobs to integrate with students' studies: "It would be very helpful if the university could help us financially, provide more scholarships, and maybe help us find suitable jobs during this period" (Student 16).

5. Discussion

The majority of students in the current study reported perceiving their studies as difficult and had no prior experience of online learning. These findings illustrate the challenges students in this sample faced. Similar findings were found among first-year nursing students, but not in the context of online learning (McDonald et al., 2018). A complementary explanation is found in students' answers to the open-ended questions: students clearly stated feeling that they had an overload of study material and difficulties organizing and managing their studies through the online environment. This is probably due to their lack of prior experience with this educational method or maybe as a result of a lack of academic support. Additionally, students reported a lack of social interaction with other students which may have impaired their ability to receive help from their classmates and further increased their sense of finding their studies difficult.

Positive moderate correlations were found between ASE and resilience, ASE and social support, and between resilience and social support. These findings are consistent with earlier findings among nursing students (Stephens, 2013; Walsh et al., 2020; Van Hoek et al., 2019; Hwang and Shin, 2018; Park and Jeong, 2020; El-Sayed et al., 2021; Sweeney, 2021; Caton, 2021). and emphasize the importance of these factors in both traditional and online learning. Negative correlations were found between ASE and perceived difficulty in studies and between resilience to students' perceived difficulty in studies. As mentioned earlier, students with low ASE tend to be unconfident of their educational capabilities and have difficulty meeting their tasks (Bandura, 2001; McLaughlin et al., 2008; Satici and Can, 2016). Accordingly, these respondents will likely perceive their studies as more difficult. Resilient students tend to be more able to resist environmental risk experiences or adversity (Rutter, 2006). Students experiencing less resilient behavior will therefore likely have more difficulty coping with challenges and consequently perceive their studies as more difficult.

Women in the current study reported higher ASE and experienced more social support than men. These findings are consistent with previous reports showing that female students score consistently higher ASE (Sachitra and Bandara, 2017) and perceived more social support than men (Cuartero and Tur, 2021).

Jewish students reported higher ASE compared to non-Jewish students. A possible explanation may be the technological and educational gaps recently reported among the general population of Israeli students during the transition to online learning. Israeli non-Jewish students reported facing more Internet infrastructure, difficulties with digital capabilities, language gaps (the mother tongue is not Hebrew) and fears that they would have to drop out of studies (Tehawkho et al., n.d.). That may also be the case in the present study sample, leading to decreased ASE. Moreover, Jewish students in the current study reported a higher sense of resilience than non-Jewish students. This finding is consistent with an earlier study among Israeli students (Kimhi et al., 2017). but may be also connected to the sample's composition with the majority being Israeli-Jewish students.

Students that had prior experience with online learning reported a higher ASE than those who had no experience at all. This finding is consistent with previous studies (Peechapol et al., 2018). Furthermore, Bandura's source of efficacy (Bandura, 2001) states that prior experience is one of the factors influencing an individual's perceived self-efficacy.

The current study found resilience, social support, perceived difficulty in studies and gender (female) to explain 31% of the ASE variance among first-year nursing students. These findings contribute specifically

to the importance of resilience and social support to ASE among nursing students in online environments. To date, these associations have been poorly explored and these new findings now provide evidence for increasing students' ASE through strengthening resilience and increasing social support. Possible solutions may be found in student's recommendations for their preferred assistance. These add and complement the quantitative findings. Interestingly, students asked for regular frontal meetings with an academic advisor, additional individual lessons to reinforce the ones given and social interactions to improve their learning. These may represent an interpretation of the recommendations suggested by Walsh et al., (Walsh et al., 2020) in their integrated review. The latter indicated on: peer activities, reflective practice, directed study, problem based learning and experiential learning as strategies strengthening resilience. Most of these strategies can serve students' requests, strengthen their resilience and social support and lead to improved ASE in online environments.

This study has two limitations. It employed a convenience sampling drawn from one university, based on self-reports. This might limit the generalizability of the findings to the entire population of first-year nursing students in Israel. In future, this study could be improved by drawing participants from several universities in Israel. The second is related to the questionnaire which included only two open-ended questions. Adding more open questions and interviews with students and educators would have provided more information and a deeper understanding of students' perceptions and understanding of the situation.

6. Conclusions

Online learning provides convenience and availability for the user. Nevertheless, for nursing students in their first year, it appears that this learning environment has created a perceived high workload, difficulty in understanding and organizing learning materials, as well as a loss of learning interactions with classmates and faculty. All of these together contributed to the students' general perception of their studies being difficult and in turn, likely decreasing their ASE. It is recommended to strengthen and develop regular social interactions between students and faculty members face-to-face and when needed, by online means.

Social support could also enhance resilience as well as the use of learning through peer activities initiated and developed by faculty and nurse educators. Resilience and social support, as found in the current study, contribute to ASE.

Variance in students' ASE, resilience and social support according to personal characteristics highlight the need of faculty to consistently assess students' needs and identify at an early stage struggling students, especially during times when distance learning is required.

Finally, effective online learning requires that students are given sufficient preparation to get the most out of this new approach to learning.

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CRedit authorship contribution statement

Sigalit Warshawski: Conceptualization, Methodology, Validation, Formal analysis, Investigation, Data curation, Writing – original draft, Writing – review & editing, Supervision, Project administration.

Declaration of competing interest

The authors report no conflict of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.nedt.2022.105267>.

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