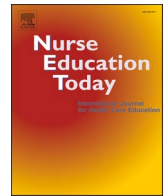




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Research article

Are internship experiences during a pandemic related to students' commitment to nursing education? A cross-sectional study

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ABSTRACT

Background: The predominate role of internships on the retention of nursing students highlights the need to monitor internship experiences during a healthcare crisis like CoViD-19.

Objectives: To explore the relation between internships experiences during a pandemic and student nurses' commitment or intention-to-leave the nursing program; as well as the relation between internship experiences and commitment or intention-to-leave the nursing program.

Design, setting and participants: A cross-sectional study using a sample of 1.079 nursing students from 18 nursing schools in Flanders, Belgium. Students from all study years were eligible to participate.

Methods: Online self-reporting survey during the first CoViD-19 wave (April-May 2020). Regression analyses were used to explore the association with students' commitment or intention-to-leave.

Results: Students reported high levels of study commitment (4.06; *SD* 0.66; range 1-5), and an overall low intention-to-leave (1.64; *SD* 0.83; range 1-5). No difference in commitment or intention-to-leave were seen between students who did or did not had internship experience during CoViD-19 period. Need-supportive experiences - indicating that students felt competent, related to the team, and could be themselves on internship - coincided with high commitment. Conversely, need-frustrating experiences - indicating that students felt insecure, unrelated, and controlled by the nursing team - increased intention-to-leave nursing education. Students who felt pressured for an internship during the first wave of the CoViD-19 crisis, had more doubts to continue nursing education, and an increased chance on drop-out.

Conclusions: We recommend nursing schools to assess student's motivation when making a substantiated decision concerning internships during a health crisis, as facing an imposed or subjective mandatory decision to go into clinical practice might lead to less commitment to the study program. For both teacher and staff mentors it is deemed important to discuss the internship climate with the student, in order to early identify need-frustrating issues during internship.

1. Introduction

In most Western countries, the shortage of nursing staff provides challenges to the healthcare system (WHO, 2020). Although the influx in the nursing education is sufficient in most countries (WHO, 2020), there is a high drop-out rate among nursing students (Urwin et al., 2010; Van Hoek et al., 2019). Some studies show that in the midst of the CoViD-19 pandemic, students reported the intention to quit nursing education (Nie

et al., 2021; De Los Santos et al., 2021). Since internships are both essential to acquire cognitive, reflective and affective nursing skills, as well as the most important factor in the retention of nursing students (Crombie et al., 2013; Eick et al., 2012), it is vital to monitor how nursing students experience their internship during a healthcare crisis like CoViD-19, both in order to provide meaningful learning opportunities, as well as to retain students in nursing education.

Although some research has been conducted on nursing education

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during a pandemic (e.g., Ferranti et al., 2016; Gaffney et al., 2021; Musallam and Flinders, 2021), a body of knowledge on internship experiences during a pandemic is lacking. Studies who do address this issue are predominantly case studies (e.g., McGeehin Heilferty et al., 2021) or interview studies who mainly focused on the experience of final year nursing students (e.g., Gómez-Ibáñez et al., 2020; Velarde-García et al., 2021; Casafont et al., 2021). The limited quantitative research that is available focused on nursing students' quality of life, risk perception, and teacher and team support during internships (e.g., Grande et al., 2021; Ulenaers et al., 2021). To our knowledge, no previous study has linked internship experiences during a pandemic to commitment or intention-to-leave the nursing program, certainly not taken into account the perspective of all year students. Shedding light on this issue is vital, as for both educational institutions and hospitals, fast-tracked decisions are needed on whether or not nursing students are able to proceed or start with their internship during a major health crisis.

Considering the multiple challenges to provide a suitable internship experience during a major health crisis, the purpose of this study was to explore the relation between internship experiences during a pandemic and student nurses' commitment or intent-to-leave the nursing program. Four research questions guided the study: (1) Which levels of commitment and intent to leave is present among nursing students during the first CoViD-19 wave? (2) Is there a difference in commitment or intent to leave nursing education between students having internship or not during CoViD-19? (3) Are demographics and internship characteristics (i.e., planning and setting) related to commitment or intent to leave nursing education? (4) Are internship experiences (i.e., psychological need-based experiences and motivation) related to students' commitment or intent to leave nursing education, and what is the possible mediating role of motivation for internship in this relation? Answering these research questions could contribute to identifying key factors that might have the potency to strengthen students' commitment during internships.

2. Background

Being committed to a chosen study is important to retain students into their nursing education, and afterwards into the nursing profession (Clements et al., 2016; ten Hoeve et al., 2017). Commitment (Meyer and Allen, 1991) reflects the individual desire to be part of a profession, and thereby reflects the affective aspect of dedication to (the education towards) a profession (Klein et al., 2012). Such commitment to a chosen study leads to study success (Reeve, 2012). Conversely, the intention to leave refers to thoughts about leaving the profession or the education towards that profession (Meyer et al., 1993). Such thoughts reflect students' doubts on their chosen study, and might lead to program drop-out (Dante et al., 2016). The CoViD-19 pandemic has once more pointed to the importance of student nurses' retention to meet current and future staff needs. The predominate role of internships on the retention of nursing students (Crombie et al., 2013) highlights the need to monitor internship experiences during a healthcare crisis like CoViD-19. That is, an internship that is continued, altered or postponed due to the CoViD-19 crisis might be related to less commitment to the nursing education as a whole. In addition, the contextual conditions of an internship are wide-ranging, and can be more or less supportive (Clements et al., 2016; Papastavrou et al., 2016). This supportive character of an internship context might even further be challenged by the CoViD-19 crisis.

One particular way to look at support is through the lens of Self-Determination Theory (SDT; Ryan and Deci, 2017). SDT has identified three psychological needs, namely autonomy, competence, and relatedness of which the fulfilment leads to a range of beneficial outcomes, including mental well-being, vitality and commitment (Deci and Ryan, 2000; Ryan and Deci, 2017). When these psychological needs are supported, people have a sense of psychological freedom and are able to be themselves (autonomy support), feel confident and effective (competence support), and feel respected and cared for (relatedness support). In

contrast, the frustration of these psychological needs hampers mental well-being, vitality and commitment (Deci and Ryan, 2000; Ryan and Deci, 2017). In case of frustration, people feel controlled or pressured (autonomy frustration), insecure or ineffective (competence frustration), and ignored or disrespected (relatedness frustration). For nursing internships, the CoViD-19 situation meant weighing the value of an extraordinary learning opportunity against the risk of possible overburdening nursing students due to stressful events. Learning experiences in practice could be experienced as challenging and enriching, yet for others as overwhelming (Ulenaers et al., 2021), and thereby make them feel less competent or insecure. Also, the shortage of nursing staff during the CoViD-19 pandemic meant that the availability of on-site mentorship was sometimes reduced, whereby students might experience relatedness frustration. At the same time, this shortage of staff, might enable the will in nursing students to provide helping hands, and feel of societal value (Casafont et al., 2021). So, during internships in the midst of this health crisis, students can experience different levels of need support or frustration. Consistent with previous SDT-based studies on nurses' psychological need-based experiences (Boudrias et al., 2020; Gillet et al., 2018), it was hypothesized that the experience of need support during the internship would be related to more commitment in the nursing education as a whole, whereas the experience of need frustration would especially relate to students' intent to leave (Fig. 1).

Next to the need-based experiences, students' personal motivation for the internship might be related to students' overall commitment or intent to leave. Within SDT, a distinction is made between autonomous and controlled motivation (Vansteenkiste et al., 2009). Autonomous motivation reflects a more qualitative type of motivation in which there is a volitional willingness to pursue an activity, such as having an internship out of joy and interest, or because an internship represents important personal values (Vansteenkiste et al., 2009). Controlled motivation, on the other hand, reflects a less qualitative type of motivation and consists of internal or external felt pressure to undertake an activity, such as the avoidance of feelings of guilt (internal pressure) or to gain appreciation of others by the choice to do an internship (external pressure; Vansteenkiste et al., 2009). Examining the quality of motivation for internship is of particular importance to examine during CoViD-19, in two ways. First, there seems to be large heterogeneity in the motivation during challenging times like CoViD-19. Indeed, in the first disruptive weeks of CoViD-19, research has shown that some nursing students felt pressure to go into nursing practice, due to fear (De Los Santos et al., 2021), whilst others were eager to step into nursing practice and felt of societal value (Casafont et al., 2021). Second, ample research in the work context has shown the importance of motivation in the prediction of commitment and intention to leave (e.g., Gillet et al., 2013; Gagné et al., 2008), both for nurses in the beginning of their career (Fernet et al., 2017) as well as for nursing students (Rose, 2011). Therefore, in line with Self-Determination Theory (Ryan and Deci, 2017), it was hypothesized that autonomous motivation is predominantly associated with more study commitment, whereas controlled motivation is predominantly associated with more intention-to-leave nursing education.

Furthermore, we anticipated that motivation to do an internship might have a mediating effect in the relation between need-supportive internship experiences and study commitment, whereas controlled motivation would mediate the association between need-thwarting experiences and intention-to-leave nursing education (Fig. 1). To date, there is few evidence, even none from a pandemic perspective, which explores how need-supportive or need-frustrating experiences during internships are associated with students' retention in the nursing program, and what the mediating role of motivation is.

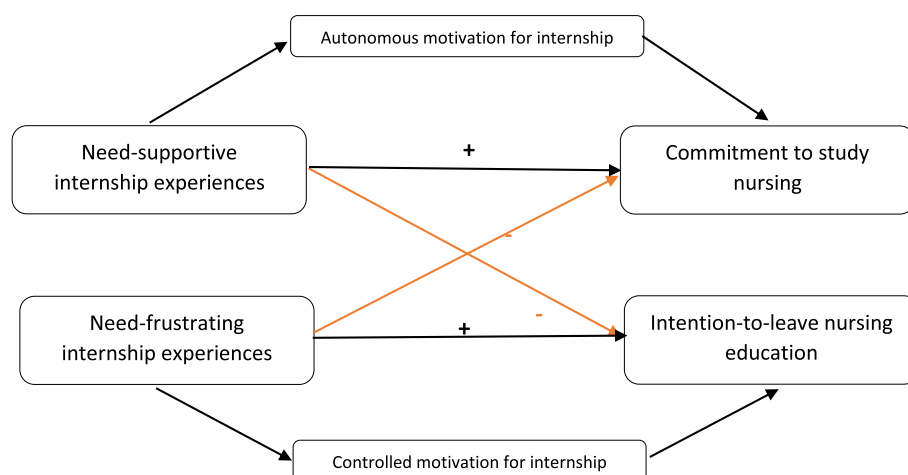


Fig. 1. Hypothesized relationships between study variables.

3. Method

3.1. Design, setting and participants

On February 4th 2020, the first case of CoViD-19 was reported in Brussels. By mid-March, more than 8.000 confirmed cases were reported in Belgium and on March 13th, 2020, the Belgium government decided to install a partial lockdown for their citizens in order to reduce the further break-out of CoViD-19, thereby avoiding to stress the capacity of the healthcare system. From April till May 2020 hospitals, emergency plans were active whereby non-essential surgical and non-surgical procedures were put on hold. By mid-April, more than 5.500 patients were hospitalized of whom 1.200 on ICU, with a massive outbreak of CoViD-19 in nursing homes with a prevalence of 30%, and about 1.000 death per week. Also in primary care and in psychiatric hospitals, care processes were reorganized to avoid or control outbreaks. In Belgium, morbidity and mortality from CoViD-19 were at that time higher than in most European countries (ECDC, 2020). The tension of CoViD-19 was tangible in every healthcare facility, which confronted nursing students in every healthcare setting with measures and changes due to CoViD-19. In Flanders (Belgium), students were brought into nursing practice as students and not as co-workers, as for instance in Spain (Casafont et al., 2021).

In the midst of this first lockdown (April-May 2020), the present study was organized, using a cross-sectional design and carried out in 18 conveniently sampled nursing schools in Flanders (Belgium). Participants were recruited in two ways. The participating schools posted the survey on their online learning platform, and additionally, students were recruited by social media (e.g. Facebook, Twitter). Nursing students from all educational years and both educational tracks (bachelor and vocational) were eligible to participate. In Flanders, two educational tracks exist to become a registered nurse. A bachelor's degree (qualification level 6) can be obtained after a 4-year course at university colleges, and a vocational degree (qualification level 5) can be obtained after a 3-year course at institutions for higher professional education. In 2019, countrywide, 7585 students were enrolled in the bachelor track, and 6444 in the vocational track (Department Education and Training, 2019). The study size was determined at a minimum of 1.000 participants in order to obtain a margin of error of 5% and a precision of 95%. For group comparison, at least 400 participants per educational track were needed.

3.2. Instruments

Commitment to study nursing was measured by four items from the

Organizational Commitment Questionnaire (Mowday et al., 1979), which was content and construct validated in studies among teachers (Ford et al., 2019) and among nurses (Wagner, 2007). Items were adapted for the present context by replacing “this organization” by “nursing education”. The items reflect the degree a nursing student commits to the programme (e.g., “I’m proud to be a nursing student”). In the current sample, Cronbach’s alpha was 0.70, which is considered acceptable.

Students’ intent to leave nursing education was measured by three items from Meyer et al. (1993) which validated the scale also among nurses. Items were adapted for the present context by replacing “nursing” with “nursing education”. The items reflect the degree to which a student has thought about leaving the nursing programme (e.g., “I am considering to leave my educational programme”). Cronbach’s alpha was at the acceptable level of 0.73 in the current sample.

Need-supportive and need-thwarting internship experiences were measured by a shortened version of the well-established and cross-culturally validated Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS; Chen et al., 2015). This shortened version has been shown valid in a sample of children (e.g., Van der Kaap-Deeder et al., 2017), adolescents (e.g., Vandenkerckhove et al., 2019) and parents (e.g., Mabbe et al., 2018). For this study, the introductory stem was as follows: “during my internship in this CoViD-19 crisis ...” followed by items to measure perceived autonomy, competence and relatedness. Items measured *perceived autonomy* as for students to have choice and be able to make decisions on their own during internship (4 items; e.g., “... I feel compelled to do many things that I would not choose myself”), *perceived competency* to feel capable to perform well on internship (4 items; e.g., “... I have serious doubts about whether I could do the things correct”), and *perceived relatedness* as to feel connectivity with the team (4 items; e.g., “... I feel that the team members care about me”). Items referred to both the fulfilment and the frustration of each need. Internal consistency in current sample was 0.79 and 0.81 for the fulfilment and the frustration items respectively.

Relying on Self-Determination Theory’s distinction between autonomous and controlled motivation (Ryan and Deci, 2017), *motivation for internship* was measured by two statements. Following the item stem (“I’m currently doing an internship because ...”) participants were asked to indicate their degree of autonomous motivation to perform the internship (“... I’m willing to”) and their degree of controlled motivation (“... I feel pressured”) on a 5-point Likert scale. Such use of single items are considered a valid representation of a construct in case the construct is narrow and unambiguous to the respondent, and weak effect sizes are expected (Diamantopoulos et al., 2012).

3.3. Data collection

The study was approved by the Medical Ethics Committee of Ghent University Hospital (B6702020000135). Data were collected by an on-line self-reporting survey. The survey started with detailed information about the objective, modalities for participation and termination, anonymity and confidentiality of the data. Interested students actively ticked their consent to participate, before starting the survey. Students were asked to answer the survey reflecting on the period mid-March until time of completion. Particular attention was paid to possible adverse effects of participation in which participants could contact the researchers or a public online support platform. Time to complete the survey ranged between 25 and 30 min. Vouchers (value €15) were rewarded to 40 randomly selected participants as small incentive.

3.4. Statistical analysis

All analysis were conducted using SPSS v23 (IBM inc., USA). Questionnaires with more than 25% missing answers were excluded from analysis ($N = 249$). Data were checked for normality. Descriptives were calculated as counts (percentages) or means (standard deviation). To compare the internship and non-internship sample, independent sample *t*-tests were performed. To test the association with demographic and internship characteristics, linear regression analyses were performed for commitment and intention-to-leave separately. The association with need-based internship experiences was tested by regression analysis for commitment and intention-to-leave separately. The mediating effect was tested using a percentile bootstrap estimation approach, implemented with the PROCESS macro version 3.5 (Hayes, 2017). Demographics with a significant difference were included as control variables in the model.

4. Results

4.1. Demographics

In total, 1079 students participated, representing 8% of the total Flemish nursing student population. Nursing students were enrolled in the bachelor (59.1%) and the vocational (40.9%) nursing programme; and were in their first (26.1%), second (29.0%), third (29.5%) or fourth year (15.4%; bachelor's programme only). Of the total sample, 58.7% went on internship during the first wave of the CoViD-19 pandemic. Details on demographics are provided in Table 1.

4.2. Commitment and intent to leave nursing education

Nursing students reported a study commitment of 4.06 (SD 0.66; range 1-5), and an intent to leave score of 1.64 (SD 0.83; range 1-5; see Table 2). In general, participants felt proud to be a nursing student (90%) and were satisfied with their choice to study nursing (82%). At the time of the survey, some students were actively exploring other educational programs (14%), and a small proportion had the intention to leave the nursing program (6%). No significant differences in commitment (4.02 vs 4.11; $t = -2.00$; $p = .05$) or intention-to-leave (1.65 vs 1.63; $t = 0.33$; $p = .74$) were seen between students with or without internship experience during CoViD-19 period (Table 2).

4.3. Association with demographics and internship characteristics

The results of the regression analysis are presented separately for commitment and intention-to-leave, with *B* coefficients, 95% CI, overall significant difference, and reference category (see Table 3). Demographics revealed no significant differences on commitment or intent to leave, except for living situation. Students living independently or with partner or children, reported a higher level of study commitment ($B = 0.52$; $p < .01$) compared to students living with their parents or at a

Table 1
Demographic characteristics sample.

Demographic characteristics	Total sample ($N = 1079$)		Internship sample ($N = 634$)		Non- internship sample ($N = 445$)	
	Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>
Age (years)	24.9	7.5	24.7	7.1	25.3	8.1
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Gender						
Female	966	89.4	564	89.0	402	90.3
Male	113	10.6	70	11.0	43	9.7
Educational track						
Bachelor's programme	638	59.1	423	66.7	215	48.3
Vocational programme	441	40.9	211	33.3	230	51.7
Educational year						
Year 1	282	26.1	107	16.9	175	39.3
Year 2	313	29.0	135	21.3	178	40.0
Year 3	318	29.5	243	38.3	75	16.9
Year 4 (bachelor's programme)	166	15.4	149	23.5	17	3.8
Living situation						
Student room, alone	50	4.6	40	6.3	10	2.2
Student room, other students	55	5.1	40	6.3	15	3.4
With parents	656	60.8	390	61.5	266	59.8
Living independently	318	29.5	164	25.9	154	34.6
Internship planning						
As planned	391	36.3	391	61.7	N/A	N/A
Altered	243	22.5	243	38.3	N/A	N/A
Postponed by school	337	31.2	N/A	N/A	337	75.7
Postponed on own initiative	17	1.6	N/A	N/A	17	3.8
Non-planned	91	8.4	N/A	N/A	91	20.5
Internship setting ($N = 634$)						
General hospital	249	39.3	249	39.3	N/A	N/A
University hospital	70	11.1	70	11.1	N/A	N/A
Psychiatric hospital	66	10.4	66	10.4	N/A	N/A
Residential elderly care	174	27.4	174	27.4	N/A	N/A
Primary care	24	3.8	24	3.8	N/A	N/A
Covid-19 ward	51	7.9	51	7.9	N/A	N/A

student room. Students in the at-risk population for corona reported a higher level of intention-to-leave compared to students not at-risk ($B = 0.19$; $p = .04$). Structural internship characteristics (i.e., planning, and setting) were not associated with students commitment or intention-to-leave nursing education.

4.4. Association with need-based experiences and internship motivation

Need-supportive internship experiences were positively associated with commitment, for every psychological need separately. For example, the experience of autonomy fulfilment and commitment ($B = 0.31$; $p < .001$). Opposite, need-thwarting experiences were positively associated with intent-to-leave, for every psychological need separately. For example, relatedness frustration and intention-to-leave ($B = 0.20$; $p < .001$).

Autonomous motivation to have internship was positively associated with study commitment ($B = 0.27$; $p < .001$) and negatively to intention-to-leave ($B = -0.30$; $p < .001$). Conversely, when students felt pressured to perform an internship, this was associated with higher levels of intention-to-leave ($B = 0.18$; $p < .001$), and with lower levels of commitment ($B = -0.15$; $p < .001$).

4.5. The mediating role of internship motivation

Linear regression analyses were performed to explore the relation between need-based internship experiences and students' commitment or intent to leave the nursing program, and the possible mediating role of motivation for internship (Table 4; Fig. 1). In step 1, the regression of need-supportive internship experiences on students' commitment, ignoring the mediator, was significant ($\beta = 0.34$; $p < .001$). Step 2

Table 2

Descriptives on nursing student's commitment to study nursing and intention-to-leave.

	All students (N = 1079)*						Group comparison		
	Mean (SD)	Frequencies (%)***					Internship (N = 634)	Non-internship (N = 445)	Mean difference
		Completely not agree	Not agree	Neutral	Agree	Completely agree	Mean (SD)	Mean (SD)	[95%CI]
Commitment †	4.06 (0.66)						4.02 (0.67)	4.11 (0.65)	0.08 [-0.16; 0.00]
Proud to be nursing student	4.49 (0.74)	0.6	1.1	7.9	29.7	60.6	4.48 (0.74)	4.49 (0.76)	-0.01 [-0.10; 0.08]
Presenting themselves as nursing student	3.65 (1.09)	4.4	10.7	23.7	37.3	23.8	3.64 (1.08)	3.68 (1.11)	-0.18 [-0.18; 0.09]
Satisfied with choice to study nursing	4.26 (0.91)	1.4	3.3	13.1	31.9	50.3	4.19 (0.96)	4.37 (0.82)	-0.17 [-0.28; -0.07]**
Comparable personal and program values	3.83 (0.89)	1.9	3.3	28.7	42.4	23.7	3.79 (0.90)	3.89 (0.88)	-0.10 [-0.21; 0.01]
Intention-to-leave †	1.64 (0.83)						1.65 (0.82)	1.63 (0.84)	0.02 [-0.08; 0.12]
Exploring other study programs	1.89 (1.19)	55.8	17.3	12.8	10.4	3.7	1.94 (1.23)	1.82 (1.14)	0.12 [-0.02; 0.27]
Intention to leave the nursing program	1.55 (0.96)	69.2	14.5	9.7	5.3	1.3	1.55 (0.97)	1.55 (0.94)	0.00 [-0.11; 0.11]
Intention to leave next academic year	1.48 (0.92)	72.7	14.3	7.4	3.8	1.9	1.45 (0.89)	1.52 (0.97)	-0.08 [-0.19; 0.04]

† range 1 to 5.

* $p < .05$.** $p < .01$.*** $p < .001$.

indicated that the regression of need-supportive internship experiences on the mediator, autonomous motivation, was significant ($\beta = 0.70$; $p < .001$). In step 3, the regression between autonomous motivation (the mediator) and intent-to-leave was significant ($\beta = 0.21$; $p < .001$). Step 4 of the analysis indicated that need-supportive internship experiences still had a meaningful relation with commitment ($\beta = 0.15$; $p < .001$), after controlling for autonomous motivation. There was however a reduction in effect. So, need-supportive internship experiences relates, both directly and indirectly, to study commitment via internship motivation.

In the mediation process for intention-to-leave, step 1 indicated that the regression between need-frustrating internship experiences and students' intent to leave, ignoring the mediator, was significant ($\beta = 0.38$; $p < .001$). Step 2 indicated that the regression of need-thwarting internship experiences on the mediator, controlled motivation, was significant ($\beta = 0.50$; $p < .001$). Step 3 of the mediation process indicated that the regression between controlled motivation (the mediator) and students' intent to leave was significant ($\beta = 0.16$; $p < .001$). Step 4 indicated that, controlling for controlled motivation, need-thwarting internship experiences had a meaningful reduction in effect on intent-to-leave ($\beta = 0.08$; $p < .001$). The effect of the association between need-thwarting internship experiences and intention-to-leave was, to a limited extent, mediated by a controlled motivation to perform internship.

5. Discussion

In order to create an optimal learning environment during the CoViD-19 pandemic, the present study focused on the unique experiences of nursing students regarding their clinical internship during the first wave of the CoViD-19 pandemic (March-May 2020). To our knowledge, no previous study has linked internship characteristics (i.e., planning, setting), and internship experiences (i.e., need-based experiences and motivation) during a pandemic to commitment or intention-to-leave the nursing program, outcomes that are crucial in the prediction of study success (Dante et al., 2013) and transition to work (Lin et al., 2014).

A first aim of this study was therefore to examine the strength of the commitment or intent to leave nursing education in the current sample of nursing students during the first CoViD-19 pandemic, comparing both students having internship and students without internship during this pandemic. Overall, during the first CoViD-19 wave, in general, nursing students indicated a strong commitment to their choice to study nursing, in which they were convinced to become a nurse, study nursing out of personal interest and experience a desire to become a nurse. This

notably positive study commitment is encouraging to retain nursing students, and is also seen in a non-crisis related interview study by Clements et al. (2016), and a longitudinal study of ten Hoeve et al. (2017). Interview studies during the CoViD-19 pandemic specifically also reported high levels of commitment among final-year nursing students (Gómez-Ibáñez et al., 2020). With 6%, the intention-to-leave was in line with the low levels reported in pandemic related studies (De Los Santos et al., 2021; Nie et al., 2021), although relative low compared to regular periods. In regular periods, about 28% of Flemish nursing students occasionally considers leaving the nursing program (Van Hoek et al., 2019). These findings seem to indicate that the CoViD-19 pandemic, although often perceived as challenge by students (De Los Santos et al., 2021) does not coincide with a higher intent to leave the nursing education in the present sample. One could argue that might have to do with the fact that the societal and personal value of being a nurse was more clear during this pandemic. In line with the above theorizing, one could state that students who go on internship might experience more commitment and less intent to leave, based on the fact that the professional value might be more pronounced when operating in nursing practice. The present research shows that this is not necessarily the case, since no difference in commitment level was seen between students who did or did not had internship. To clarify this issue, future research is needed.

A second aim of the present study was to examine whether internship characteristics (i.e., planning, setting), and internship experiences (i.e., need-based experiences and motivation) were related to study commitment or intent-to-leave. First, the present study shows that the motivation for the internship relates to study commitment or intent to leave the nursing education as a whole. That is, students willing to perform their internship, regardless of the setting and even on CoViD-19 wards, were more convinced about their choice for nursing and committed to continue their education and become a nurse. The opposite pattern emerged for students who felt pressure to perform their internship. They experienced more doubts about continuing their education and experienced less pride or satisfaction with their choice to become a nurse. These findings are in line with Self-Determination Theory, that states that willingness is grounded in interest for the activity, or in the challenge that the activity brings with it, and is key to positive performance, wellbeing and commitment, whereas controlled motives might challenge that commitment and performance (Ryan and Deci, 2017). However, although motivation for performing the internship might fuel the commitment for or intent to leave the education as a whole, it might also be the other way around. That is, students who are convinced about their study program and feel satisfied with their study choice might get energized and motivated for putting the theory in

Table 3

Demographics, structural, contextual and personal internship characteristics related to commitment and intent-to-leave among students on internship during CoViD-19 (N = 634).

	Commitment				Intention-to-leave			
	B	95% CI		p	B	95% CI		p
		Lower	Upper			Lower	Upper	
Age	0.01	0.01	0.02	0.03	−0.01	−0.02	−0.01	0.08
Gender								
Female	0.16	−0.01	0.21	0.07	−0.16	−0.36	0.05	0.13
Male (ref)	–	–	–	–	–	–	–	–
Educational track								
Bachelor's programme	0.01	−0.16	0.18	0.94	−0.01	−0.22	0.21	0.96
Vocational programme (ref)	–	–	–	–	–	–	–	–
Educational year								
Year 1	0.22	−0.13	0.56	0.22	0.19	−0.23	0.62	0.37
Year 2	0.28	−0.05	0.62	0.09	0.14	−0.27	0.55	0.50
Year 3	0.18	−0.06	0.42	0.14	0.09	−0.20	0.38	0.55
Year 4 (ref)	–	–	–	–	–	–	–	–
Graduating year								
Yes	0.17	−0.06	0.41	0.15	0.01	−0.29	0.30	0.98
No (ref)	–	–	–	–	–	–	–	–
Living situation								
Student room, alone	−0.23	−0.48	0.01	0.05	0.23	−0.06	0.53	0.12
Student room, other students	−0.16	−0.39	0.08	0.20	0.19	−0.10	0.48	0.20
With parents	−0.16	−0.29	−0.03	0.02	0.22	0.06	0.38	<0.01
Living independently (ref)	–	–	–	–	–	–	–	–
At-risk population for corona								
Yes	−0.05	−0.19	0.10	0.55	0.19	0.01	0.37	0.04
No (ref)	–	–	–	–	–	–	–	–
Internship planning								
As planned	0.08	−0.04	0.20	0.17	−0.05	−0.20	0.10	0.50
Altered (ref)	–	–	–	–	–	–	–	–
Internship setting								
General hospital	−0.04	−0.26	0.18	0.70	0.01	−0.26	0.28	0.94
University hospital	0.05	−0.21	0.31	0.72	−0.12	−0.44	0.20	0.46
Psychiatric hospital	−0.03	−0.29	0.24	0.86	0.16	−0.16	0.49	0.33
Residential elderly care	−0.10	−0.33	0.13	0.39	0.03	−0.26	0.31	0.86
Primary care	0.02	−0.33	0.37	0.90	−0.06	−0.49	0.37	0.78
Covid-19 ward (ref)	–	–	–	–	–	–	–	–
Motivation for internship								
Autonomous	0.27	0.22	0.32	<0.001	−0.30	−0.36	−0.23	<0.001
Controlled	−0.15	−0.19	−0.11	<0.001	0.18	0.14	0.23	<0.001
Need-supportive internship experiences								
Autonomy fulfilment	0.31	0.25	0.37	<0.001	−0.29	−0.36	−0.21	<0.001
Competence fulfilment	0.18	0.10	0.25	<0.001	−0.17	−0.26	−0.07	<0.01
Relatedness fulfilment	0.17	0.11	0.24	<0.001	−0.17	−0.25	−0.10	<0.001
Need-frustrating internship experiences								
Autonomy frustration	−0.21	−0.27	−0.16	<0.001	0.33	0.27	0.39	<0.001
Competence frustration	−0.10	−0.15	−0.04	<0.001	0.19	0.12	0.26	<0.001
Relatedness frustration	−0.15	−0.21	−0.10	<0.001	0.20	0.13	0.27	<0.001

Significant results are indicated in bold.

practice, even during challenging times such as the CoViD-19 pandemic. Although longitudinal research is needed to assess the direction of effects, based on the above findings, we recommend nursing schools to assess student's motivation when making a substantiated decision concerning internships during a health crisis, as facing an imposed or subjective mandatory decision to go into clinical practice might lead to less commitment to the study program as a whole.

Second, the extent to which the internship climate was need-supportive coincided with more commitment and less intent to leave in the current sample of student nurses. Indeed, when students felt competent to master the situation at hand, could relate to the team, and could be themselves on the internship, they are more satisfied with their choice to become a nurse and feel proud to be a nursing student. In contrast, internship experiences that were rather need-frustrating, indicating that students felt insecure, unrelated and controlled by the nursing team related to doubts whether to continue the nursing program and an exploration of other possible study programs. These findings are in line with what we expected based on SDT and coincide with other research, connecting different levels of need support or frustration to commitment or intention-to-leave (Boudrias et al., 2020; Gillet et al.,

2018).

Third, the present study found that the relation between need-based experiences during internship and feeling committed to the nursing program as a whole was partially mediated through motivation for the internship. Longitudinal data are needed to examine the direction of effects, however, the notion that need-based experiences fuel motivation and subsequently impacts commitment has been well established in other domains such as work (Gillet et al., 2013) and education (Orsini et al., 2015). Based on these results and the current research at hand, both teacher and staff mentors may do well to provide a need-supportive environment for students, while detecting and discussing need-frustrating elements during a students' internship. For staff mentors for instance, it means being approachable and available to follow-up on students, helping students to master the situation at hand, and letting students be at the onset of their own learning process. For teaching mentors for instance, it means monitoring students' level of confidence to embark for internship beforehand, as in these unprecedented times for internships, nursing students were sometimes doubting on their own skills (Musallam and Flinders, 2021). Besides, mentors could discuss levels of commitment or doubts on study choice itself with their students

Table 4

Summary of regression analysis for internship experiences on students' commitment and intention-to-leave, with mediation of internship motivation.

Commitment [†]					
Direct effect	Effect of IV on DV (c')	SE	p	95% CI	
				Lower	Upper
Need-supportive experiences	0.34	0.04	<0.001	0.26	0.42
Mediator	Effect of IV on mediator (a)	Unique effect of mediator (b)	Indirect effect (ab)	95% CI	
				Lower	Upper
Autonomous motivation for internship	0.70*	0.21*	0.15*	0.10	0.20

Intention-to-leave [‡]					
Direct effect	Effect of IV on DV (c')	SE	p	95%CI	
				Lower	Upper
Need-frustrating experiences	0.38	0.04	<0.001	0.30	0.46
Mediator	Effect of IV on mediator (a)	Unique effect of mediator (b)	Indirect effect (ab)	95% CI	
				Lower	Upper
Controlled motivation for internship	0.50*	0.16*	0.08*	0.05	0.12

[†] models controlled for age; [‡] models controlled for at-risk population.

* $p < .001$.

as well, and their underlying reasons to continue. Such conversational topics are equally important to lift students to a higher level of learning and professional growth (Henderson et al., 2012).

5.1. Strengths and limitations

The present study has several strengths and limitations. First, the online survey ensured a wide range of participants. Nevertheless, (on-line) surveys limit themselves by the risk of high non-response and social desirability. Non-response bias might have been introduced for instance in favour of the more committed students. The recruitment strategy by online advertising (social media and online school platforms) withheld us to calculate the response rate within the 18 approached schools. However, our sample comprised 8% of the target population and can be seen as a representative reflection of the Flemish nursing students population in terms of gender, educational years and educational pathway (Department Education and Training, 2019). The anonymous set-up protected against social desirable answers. Second, transferability and generalizability of the results is limited by the national character of the study. Third, this survey reflects a cross-sectional snapshot during the first wave of the CoViD-19 pandemic, so direction of effects could not be assessed and long-term effects of the pandemic on the commitment to become a nurse is not yet clear. This cohort of nursing students will be followed in a longitudinal study on professional commitment. Additional qualitative research might provide a broader understanding of students' reasons for retention or drop-out during a pandemic.

6. Conclusions

Assessing student's motivation is key when making a substantiated decision concerning internships during a health crisis, as facing an imposed or subjective mandatory decision to go into clinical practice might lead to less commitment to the study program. During a major health crisis, it is deemed important to monitor the experienced internship climate, motivation and study commitment as to early identify intent-to-leave among nursing students.

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Ethical approval

The study was approved by the Ethical Review Committee of Ghent University Hospital (B6702020000135). All participants received detailed information about the aim and procedures, and were informed of confidentiality. Participation was voluntary.

CRediT authorship contribution statement

All authors were involved in the conception and design of the study; acquisition of data by VD, BV & SM, analysis of data by VD, interpretation of data by all authors; the article was drafted by VD, BV and SM, and revised critically for important intellectual content by AVH, RV and MV; all authors approved the final version.

Declaration of competing interest

None to declare.

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