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The effect of a more community-oriented curriculum on nursing students' intervention choice in community care: A quasi-experimental cohort study

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ABSTRACT

Aim: The aim of this study is to investigate the effect of a more 'community-oriented' baccalaureate nursing curriculum on students' intervention choice in community care.

Background: Following a healthcare shift with increased chronic diseases in an ageing patient population receiving care at home, nursing education is revising its curricula with new themes (e.g., self-management) on community care. Although it seems obvious that students incorporate these themes in their nursing care interventions, this is unclear. This study investigates the effect of a redesigned curriculum on students' care intervention choice in community nursing.

Design: A quasi-experimental quantitative study.

Methods: This study with an historic control group (n = 328; study cohorts graduating in 2016 and 2017; response rate 83 %) and an intervention group n = 152; graduating in 2018; response rate 80 %) was performed at a University of Applied Sciences in the Netherlands. The intervention group experienced a curriculum-redesign containing five new themes related to community care (e.g., enhancing self-management, collaboration with the patients' social network, shared decision making, using health technology and care allocation). The primary outcome 'intervention choice in community nursing' was assessed with a specially developed vignette instrument 'Assessment of Intervention choice in Community Nursing' (AICN). Through multiple regression analyses we investigated the effect of the curriculum-redesign on students' intervention choice (more 'traditional' interventions versus interventions related to the five new themes). The control and intervention groups were compared on the number of interventions per theme and on the number of students choosing a theme, with a chi-square or T-test.

Results: Students who studied under the more community-oriented curriculum chose interventions related to the new themes significantly more often, $F(1461) = 14.827$, $p = <0.001$, $R^2 = .031$. However, more traditional interventions are still favourite (although less in the intervention group): 74.5 % of the chosen interventions in the historic control group had no relation with the new curriculum-themes, vs. 71.3 % in the intervention group; $p = .055$).

Conclusions: Students who experienced a more 'community-oriented' curriculum were more likely, albeit to a limited extent, to choose the new community care themes in their caregiving. Seeing this shift in choices as a step in the right direction, it can be expected that the community care field in the longer term will benefit from these better skilled graduates.

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1. Introduction

Many Western countries are increasingly emphasising the importance of a healthy workforce of well-educated community nurses to meet the significant increase of nursing care provided outside the walls of facilities (Altman et al., 2015). This healthcare shift, related to increased chronic diseases in an ageing patient population, often with multiple health problems (Afshar et al., 2015), leads to a long lasting highly complex nursing care. As there is a growing global recognition of this shift in caregiving, nursing education is coming up with revised curricula where hospital care is no longer seen as the essence of nursing and that include new concepts related to community care, for example in the USA (AACN, 2008) and the UK (NMC, 2010). A recent example is the The EuropeaN curriculum for fAmily aNd Community nursE (ENhANCE) project (ENhANCE Project Group, 2019), leading to a community-based curriculum of 60 European Credits (ECs), to be integrated into existing nursing curricula.

In the Netherlands, similar developments took place with a new national profile for baccalaureate nursing education 'Bachelor Nursing 2020′ (Lambregts et al., 2014). This more community-oriented educational profile is based on a more dynamic concept of health that replaces the WHO definition of 'the state of complete physical, mental and social well-being', as many educators felt that this definition no longer fits the current healthcare situation (Huber et al., 2011). With the increased emphasis on extramural care, the concept defined as 'the ability to adapt and self-manage' (Huber et al., 2016) is considered more appropriate. The new Dutch educational profile contains five new concepts/themes related to community care (defined as generalist care in people's own homes), namely: (1) fostering patient self-management, (2) shared decision-making, (3) collaboration with the patients' social system, (4) using healthcare technology and (5) allocation of care. These themes refer to the role of the community nurse as a caregiver in situations where 'the ability to adapt and self-manage' is central and where 'complete physical, mental and social well-being' is no longer a viable option. If this transition is approached as a paradigm-shift, the old paradigm would represent nursing interventions where the nurse is active and helps the patient become and stay healthy, while the new paradigm represents interventions where the nurse helps the patient become active in working on optimal quality of life conditions, despite possible limited capabilities and/or conditions.

The new nursing curricula, implemented in many Western countries, should help students develop competences that prepare them to work independently in the community. Whether students felt they were ready to do this has been investigated in studies on how students perceived an internship in community care (Anderson and Kiger, 2008; Babenko-Mould et al., 2016; Bjørk et al., 2014; Lewis et al., 2019; Lewis and Kelly, 2018; Peters et al., 2015; Phafoli et al., 2017; Van Iersel et al., 2018) and on their perceptions of a career in this area (Bloomfield et al., 2017; Byfield et al., 2019; Calma et al., 2019; Illingworth et al., 2013; NG et al., 2019; Sela et al., 2020; Van Iersel et al., 2016, 2018). Potter et al. (2013) found, for example, that more knowledge on care for geriatric patients in the community led to a shift in students from thinking things had to be done for the patient, to realising that elderly can be encouraged to be independent. Students also learned to appreciate the role of family in care (Potter et al., 2013).

However, a less highlighted issue is the impact of new educational content on students' concrete behaviour in the form of new nursing care interventions. It remains unclear if students' intervention choices change following content changes in nursing curricula and thus moves from old to new paradigms in health care. For example: will a student who receives education on the new curriculum theme 'how to collaborate with the social system of the patient' choose different interventions in the caregiving compared with a student who receives education according to the old curriculum, in such a way that family and kin are involved in that caregiving?

In answering this question, Kirkpatrick's model, describing four levels of evaluation of education (Kirkpatrick and Kirkpatrick, 2006), is useful. The four levels are (1) 'reaction' which represents how students rate a program/ their satisfaction, (2) 'learning' which refers to the extent to which students change attitudes, improve knowledge and/or increase in their skills, (3) 'behaviour' which refers to behaviour change due to application of level 2 and (4) 'results' which represents the change in business results related to level 3. The model makes clear that satisfying programs (i.e., reaction) and increased knowledge/skills (i.e., learning) do not guarantee change in behaviour and improved clinical business outcomes. Since nursing education has the ultimate responsibility to educate students for the healthcare of the future, behavioural change must be evaluated. Despite the presence of new more community-oriented curricula, there is a paucity of research examining how new curriculum content affects students' concrete behaviour in community care. This study aims to fill this gap. The hypothesis underlying this study is that new themes in nursing education on community care will lead to different intervention choice in the caregiving.

1.1. Aim of the study

The aim of this study is to investigate the effect of a redesigned baccalaureate nursing curriculum containing extensive elements of community care on students' intervention choice in community care.

2. Methods

2.1. Design

A quasi-experimental study with a historic control group and an intervention group was performed. The historic control group underwent a more traditional, 'hospital-oriented' nursing curriculum (two student cohorts graduating in 2016 and 2017). The intervention group (one cohort graduating in 2018) underwent a redesigned curriculum with extensive elements of community care (Fig. 1).

2.2. Participants and data collection

Nursing students from a University in a large city in the Netherlands participated in the study. Data collection took place in graduating students in the full-time BSc programme in May/June 2016 and 2017 (historic control group) and in 2018 (intervention group). Students who followed other programmes and/or that underwent only a part of the

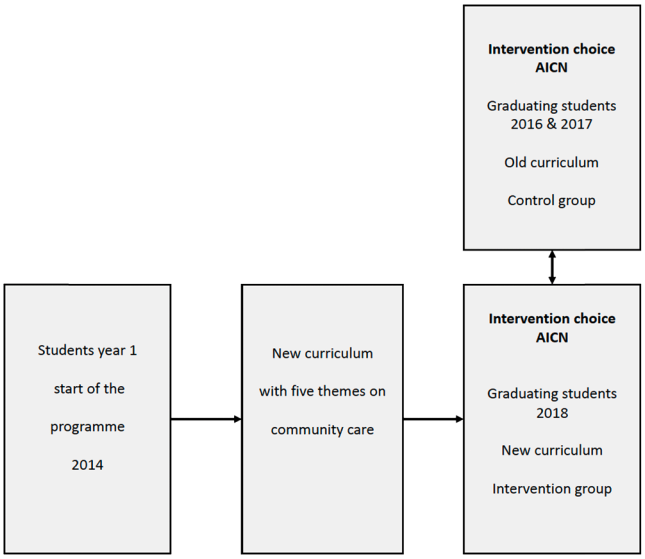

Fig. 1. Flow chart study design.

intervention due to enrolment in another study year were excluded. Students were asked to participate during class time or, if not present, individually by email.

2.3. The intervention: curriculum-redesign

The new curriculum was designed to teach students new nursing interventions related to the new themes in the revised Dutch educational profile (as described in the introduction section).

The curriculum redesign consisted of an integrative three-way approach: 1) new educational elements in the in-school curriculum; 2) lecturers as ambassadors; and 3) positive student-placement experiences. Efforts were made to ensure that students would come into contact with attractive enthusiastic role models, both as lecturer and as mentor during their placement.

The aims of the in-school curriculum redesign with regard to content were twofold: 1) broadening students' views on what the community nursing profession entails and 2) increasing students' knowledge of community care.

Of the 110 cases used in the old course materials, more than 60 appeared to take place in a hospital environment compared with four cases receiving care at home. The course materials were revised by adding more cases related to community nursing and by doing this, the 'hidden curriculum', presenting the nurse as a professional working in a hospital environment, was corrected. The five new themes from the educational profile were integrated in the broad theory programme, partly in the form of new courses and partly interwoven in existing course materials (For a detailed description of the curriculum redesign, see Van Iersel et al., 2019).

2.4. Outcome and instrument

To measure the outcome of the study, defined as 'intervention choice in community nursing', a vignette instrument was developed. Vignettes are "brief descriptions of events or situations to which respondents are asked to react, designed to elicit information about respondents' perceptions, opinions, or knowledge on a certain phenomenon" (Polit and Beck, 2008, p.423). Vignettes provide information on how people might behave in situations which are difficult to observe in daily life (Polit and Beck, 2008). In a vignette, usually between three and five themes/variables are included and these variables can be manipulated in the vignettes' design in a manner that would not be possible in observation studies, while the respondent is not aware of what the variables are (Hughes and Huby, 2004). This so-called *selectivity* is considered a valuable feature of the method (Gould, 1996). In addition, two pitfalls are avoided compared with observations in practice, namely the influence of the observer which increases the Hawthorne Effect and the ethical dilemma of infringement of respondents' privacy (Hughes and Huby, 2004). The reason to use vignettes in this study compaired to interviews was to prevent socially acceptable responses. If we would ask the students whether they, for example, integrate selfmanagement in their caregiving, they would come up with the idea that this was a desirable answer.

For our purpose we developed a vignette instrument 'Assessment of Intervention choice in Community Nursing (AICN) (Appendix 1). It consists of three vignettes where a situation in caregiving in the patients' home is described. To maximise external validity, the vignettes are based on real-life case study material (Gould, 1996) and described in such a way that a community nurse is confronted with a situation in the patients' home where a concrete nursing intervention is required. Each vignette incorporates all five new curriculum themes (fostering patient self-management, shared decision-making, collaboration with the patients' social system, using healthcare technology and allocation of care). The interventions with regard to each theme are a realistic option, while more traditional intervention choices are also possible. To avoid students responding in a way they think to be correct, they were not told of the instrument's underlying purpose (i.e., determining the five themes). After reading each vignette, the respondents briefly (two lines per intervention) formulate five, in their opinion, most suitable interventions for nursing caregiving. The 15 interventions yield qualitative information.

2.5. Pilot-test of AICN

The AICN was tested in three steps. First, the developed vignettes were scrutinised on clarity and formulation by three persons involved in different roles in community nursing (a community nurse, a student mentor and a manager). They were purposely chosen on the basis of their different viewpoints in professional practice. To improve the clarity of the information, some minor textual adjustments and/or additions were made. In the second step, the vignettes were vetted for face and content validity by a panel of nine experts (four community nurses and five lecturers in nursing education). They individually provided feedback on the instructions and the vignette texts, and their comments and responses were used to inform changes. These experts also actually used the instrument. Third, the instrument was pilot-tested in a student group not involved in the study. Twelve nursing students in the final phase of their education and in the presence of researcher MvI, filled in the instrument. As the students had no substantial questions or comments and the 30 min time to fill in the instrument appeared to be suitable, the AICN was considered final (Appendix 1).

2.6. Development of AICN codebook

To allow for quantitative data analysis, a codebook was developed describing the criteria used to recode each of the qualitative intervention descriptions into a quantitative value (Appendix 1). In a calibration process, the data from the 21 completed questionnaires (9 experts and 12 students), collected in steps 2 and 3, were used. Three researchers CL, JM and MvI independently scrutinised each described intervention to determine whether it corresponded with one of the five new curriculum themes. If so, the intervention was allocated to a quantitative value (value 1–5, depending on the theme, or value 0 if the intervention did not refer to a new curriculum theme).

First, the data from the nine experts (step 2) were analysed. Comparison of the results from the three assessors resulted in a kappa κ of.28. All interventions where the three assessors differed in interpretation with regard to the allocated theme were discussed and resolved by consensus. In this process, in- and exclusion criteria related to the five themes were noted and subsequently clustered into general criteria for in- and exclusion.

In the next round, with data from six randomly selected students (step 3), this procedure was repeated, with the difference that the draft codebook was used to guide the allocation choices. This resulted in a higher interrater reliability (kappa $\kappa = .56$). Again, the differences in interpretation were discussed and new criteria were added to the code book. The refined code book was used to analyse the data from the other six students and after two further calibrations a final code book was produced with a kappa κ of.66. A kappa κ higher than.61 was considered to be sufficient (Landis and Koch in Streiner and Norman, 2008).

2.7. Data analysis

The qualitative AICN data, in the form of chosen interventions in community nursing, were assessed and converted to quantitative values by two independent assessors MvI en SK. The recoding process was based on the in- and exclusion criteria from the codebook. Cohen's kappa κ was calculated to determine the inter-rater reliability. Cases in the recoding process with no agreement were discussed and resolved by consensus.

The quantitative data analysis was carried out in three steps: (1) determining the comparability of the historic control and intervention

groups (old vs. new curriculum) on demographic variables; (2) clustering the intervention choice into old vs. new type of intervention, related to the curriculum themes (the main effect); and (3) analysis per intervention theme and per student.

In step 1, the two groups were compared on demographics with a chi-square test or t-test. In step 2, the effect of the community-oriented curriculum on students' intervention choice in community nursing (AICN) was determined as follows. The *type* of chosen new intervention (based on the five themes) was not taken into consideration, but only whether it was old or new. Therefore, dummies were calculated for the 15 variables per case with the value 0 = no theme and 1 = new theme in intervention. From these 15 dummy variables, a sum scale was calculated, representing the primary outcome 'intervention choice in community nursing' (AICN (range 0–15)). Cases with missing values were included in the analysis as some students had not filled in all 15 interventions. The assumption was that if a student could not come up with five interventions per case, this had no influence on the other responses.

The mean values of students' intervention choice in community nursing AICN (sum scale dummy's; range 0–15), related to the old and new curriculum, were compared using a T-test. Multiple linear regression was used to investigate the effect of the curriculum redesign on students' intervention choice. A calculation of the sample size to determine whether it was appropriate for this analysis was performed, based on a power of.90 and an alpha of.025, with the rule of thumb 'required $N \geq 50 + 8$ m (with m being the number of predictors)' (Green, 1991), indicating that the sample of $N = 480$ is more than adequate. The data were assessed on normal distribution, showing that assumptions for using parametric statistics were fulfilled. After testing the main effect, demographics that differed significantly between the two groups were added to the regression model. As the statistical model tests a directional hypothesis, the significance level α was set to.025.

In the third and final step, the historic control- and intervention groups were compared on a more detailed level, namely the *types of chosen intervention*, related to the five new themes in the curriculum. For this analysis, two different perspectives were used: a comparison of the total number of interventions per new curriculum-theme and comparison of the number of students choosing a specific intervention per new curriculum-theme. Descriptive statistics (percentages, frequencies) were used in both analyses, a T-test was used to compare the two groups on number of chosen interventions per theme and a chi-square was used to compare the two groups on students choice of intervention.

2.8. Ethics approval and consent to participate

The Ethical Review Board of the Open University of the Netherlands approved the study (reference U2014/07279/HVM). The board concluded that the study is in line with the ethical codes for research in Human Subjects. Verbal informed consent was obtained from all participants, which was approved by the ethics committee because the study did not refer to a delicate or privacy-sensitive subject.

3. Results

3.1. Response rate

The historic control group from the two student cohorts consisted of 328 students (response rate 83 %) and the intervention cohort of 152 (response rate 80 %). As the attendance during class time was not requested on a mandatory base, a relatively large group was absent, and a part of this group also failed to respond to the subsequent email. However, it is not likely that the students who did not participate in the study were significantly different in characteristics from those who did.

3.2. Inter-rater reliability data coding

For recoding the qualitative data into quantitative data, as performed by two researchers MvI and SK, Cohen's kappa κ was for the cohorts graduating in 2016 and 2017 (historic control group).830 and.844 respectively and in 2018 (intervention group) $\kappa = 0.870$

3.3. Comparison control and intervention group on demographics

A comparison of demographics between the historic control group and the intervention group shows a statistically significant difference in one variable, namely 'born outside the Netherlands', $\chi^2 = 6.139$, $p = .013$ (Table 1).

3.4. Comparison control and intervention group on mean intervention choice

The T-test, comparing the means of the primary outcome intervention choice in community care AICN (range 0–15) in the control- and the intervention groups, shows a significant positive result, with a mean of 2.52 in the control group vs. 3.26 in the intervention group, $t = -3.892$ (mean difference −.739, CI −1.112 to −−0.366, $P < 0.001$ Although moving in the right direction, the mean values in both groups are relatively low.

3.4.1. Effect of curriculum-redesign on nursing students' perceptions of community care

To measure the effect of the type of curriculum on nursing students' intervention choice, controlling for differences on demographic variables, a multiple linear regression analysis was carried out. The average

Table 1
Comparison between historic control- and intervention groups on demographics.

Student characteristics in % (*n*)	Historic control/ Old curriculum ($n = 328$)	Intervention/ New curriculum ($n = 152$)	Cases missing in total	Test-value	*P** (2-tailed)
Age in years (mean, SD)	23.1 (2.2)	23.0 (2.3)	0	T = .271	0.786
Sex (male)	10.7 % (35)	8.6 % (13)	0	$\chi^2 = 0.518$	0.472
Born outside the Netherlands	2.8 % (9)	7.9 % (12)	11	$\chi^2 = 6.139$	0.013 *
Belonging to church/ religious group	15.9 % (50)	20.5 % (31)	14	$\chi^2 = 1.541$	0.214
Level of education					
general secondary	66.8 % (219)	67.1 % (102)	0	$\chi^2 = 0.005$	0.942
academic secondary	17.4 % (57)	11.2 % (17)	0	$\chi^2 = 3.056$	0.080
vocational	14.6 % (48)	20.4 % (31)	0	$\chi^2 = 2.507$	0.113
other	1.2 % (4)	1.3 % (2)	0	NA**	NA**
Working/ has been working in CC	53.0 % (168)	59.2 % (90)	11	$\chi^2 = 1.603$	0.206
Family or friends working in CC	42.0 % (133)	46.4 % (70)	12	$\chi^2 = 0.807$	0.369
Receiving home care (or in family)	35.6 % (112)	28.3 % (43)	13	$\chi^2 = 2.441$	0.118

* $P < 0.05$ CC = community care. **50 % of the cells have an expected count less than 5.

variance inflation factor (VIF) was very close to 1, showing that the assumption of no multicollinearity was true for the model (Field, 2015).

The main model (step 1), predicting nursing students' intervention choice in community nursing (AICN) from the type of curriculum, shows a statistically significant difference in intervention choice, $F(1461) = 14.827$, p = <.001, with an explained variance R^2 =[0.031 In the second step, the variable 'born outside the Netherlands', being statistically different in the control and intervention groups (see Table 1), was added stepwise to the model. This variable did not significantly change the main model $F(2460) = 7.903$, p = .323, $R^2 = .002$ (Table 2).

3.4.2. Intervention choice per new curriculum theme based on number of chosen interventions

A comparison between the historic control group and intervention group on total number of times a specific curriculum theme was chosen shows that 'no new theme in intervention' has a relatively high score, although lower in the intervention group (74.5 vs. 71.3 % respectively). A statistically significant difference can be seen in the two themes 'Social network' and 'Allocating care'. 'Allocating care' was the most chosen intervention (historic control vs. intervention group 10.3 % vs. 13.5 % respectively). The theme 'using healthcare technology' was almost completely ignored (Table 3).

3.4.3. Intervention choice per new curriculum theme based on number of students

A comparison between the historic control group and intervention group on the number of students choosing a specific type of intervention (per theme) shows no statistically significant differences between both groups. Allocating care was chosen by most of the students: historic control vs. intervention group 70.7 % vs. 75.0 % of the students respectively (Table 4).

4. Discussion

The objective of this study was to investigate the effect of a curriculum with more elements of community care on nursing students' intervention choice in community care. The overall results show a significant positive effect, though relatively small. The number of times a new curriculum theme was chosen shows the same pattern: an increase in most new themes (with a significant positive effect in two of them), but with a relatively small number compared with the interventions that are not related to the new curriculum themes.

The theme 'allocating care' is more often chosen than the other themes with proportions of 10.3 % resp. 13.5 % (old vs. new curriculum). Whilst it is tempting to think that (Dutch) baccalaureate nursing students are aware of the fact that they have the legal competence to allocate care, involving other care disciplines may also reflect their uncertainty regarding their own capacities. Earlier studies revealed that many students feel that, in a work schedule with little opportunity to exchange ideas with colleagues, making your own decisions is a great responsibility (Kenyon and Peckover, 2008); one of the reasons why they prefer to collaborate with other caregivers in a team (Bjørk et al., 2014; Murphy et al., 2012), for example in a hospital.

In terms of the number of students choosing interventions related to the new themes, it was found that most students know they can allocate care. Also, almost half of the respondents who followed the new curriculum chose the theme 'social network'. A comparison between Tables 3 and 4 shows that the number of students is greater than the number of interventions per theme. To give an example, of the 42.8 % of the students in the intervention group choosing the theme 'social network', the number of times they did this/ percentage of interventions was only 3.9 %. In other words: although many students are aware of the possibility to use the new themes in their interventions, they make relatively little use of them. This might on the one hand be related to media influences, as they often continue to represent the nursing profession in a stereotypical and outdated way (Jubas and Knutson, 2012; Kelly et al., 2012; McKenna et al., 2017) and on the other hand on

Table 2
Multiple regression analysis for the effect of curriculum on nursing students' intervention choice in community care.

	B	*SE B*	β	95 % Confidence Interval
Step 1				
Constant	1.794	.269		1.266 – 2.322
Curriculum	.736	.191	.177*	.361 – 1.112
Step 2				
Constant	1.801	.269		1.273 – 2.329
Curriculum	.717	.192	.172*	.339 – 1.095
Born outside the Netherlands	.438	.443	.046	-.432 – 1.308

Note. $R^2 = 0.031$for Step 1; $\Delta R^2 = .002$ for Step 2. * $p < .025$.

Table 3
Comparison between historic control and intervention group on intervention choice per new curriculum-theme, based on the number of chosen interventions (*n*).

Number of chosen Interventions in % (*n*)	Historic control/ Old curriculum *n* = 4920 (328 ×15)	Intervention/ New curriculum *n* = 2280 (152 ×15)	Test-value	*P* (1-tailed)
Theme: Social network	2.6 % (130)	3.9 % (90)	T = −2.615	0.009*
Theme: Shared decision making	2.9 % (143)	2.7 % (61)	T = 0.485	0.628
Theme: Self-management	0.9 % (45)	1.6 % (36)	T = −1.976	0.049
Theme: Health technology	0.0008 % (4)	0.0004 % (1)	NA**	NA**
Theme: Allocating care	10.3 % (506)	13.5 % (308)	T = −3.047	0.003*
No new theme in intervention	74.5 % (3664)	71.3 % (1625)	T = 1.920	0.055
Missing values	8.7 % (428)	7.0 % (159)	NA	NA

*P < .025. ** Not applicable: assumption for T-test not met

Table 4
Comparison between historic control and intervention group on intervention choice per new curriculum-theme,based on the number of students choosing a type of intervention.

Number of students choosing an intervention in % (*n*)[a,b]	Historic control/ Old curriculum (*n* = 328)	Intervention/ New curriculum (*n* = 152)	Test-value	*P* (1-tailed)
Theme: Social network	32.3 % (106)	42.8 % (65)	$\chi^2 = 4.942$	0.026
Theme: Shared decision making	31.4 % (103)	30.3 % (46)	$\chi^2 = 0.063$	0.802
Theme: Self-management	11.9 % (39)	18.4 % (28)	$\chi^2 = 3.689$	0.055
Theme: Health technology	1.2 % (4)	0.7 % (1)	NA*	NA*
Theme: Allocating care	70.7 % (232)	75.0 % (114)	$\chi^2 = 0.940$	0.332

* Not applicable: assumption for chi-square test not met, expected count < 5

[a] An overlap in themes in the interventions per student is a plausible option, which explains that the total sum of students per theme is higher than the total number of students in both groups.

[b] The number of students choosing 'no new theme in intervention' in at least one of the 15 interventions per student is equal to the total number of participating students. Also, there are no missing values as all students filled in (at least a part of) the instrument.

students' perceptions of caregiving, with a focus on physical needs and practical action with the purpose of improving people's health (Phillips et al., 2015).

The fact that health technology was hardly chosen may be attributable to the fact that this subject was less represented in the curriculum, not presented as a separate course but interwoven in existing course materials and thus less visible. Apparently, students' experiences in placements also did not contribute to a choice for this theme; however, the fact that the period when this research took place was before COVID-19 is a point of consideration, as the use of E-health technologies has rapidly increased since then (Cingel der et al., 2021; Tebeje and Klein, 2021).

The rich data of this study also provide other perspectives on how a nursing curriculum can have an influence on intervention choice, as the chosen interventions also seemed to be related to the *planning* of specific courses. The theme 'motivation interviewing' was often mentioned in the data, which was probably caused by the fact that the students recently had been involved in a 3-day training workshop on this subject. Here, students' choices seemed to depend on what was still vivid in their memories.

Taking all this into consideration, this study reveals that a curriculum redesign can be successful in influencing students' intervention choice in community care. It also shows that students, despite new themes in a curriculum, often tend to choose more 'traditional' interventions and that it takes time to influence or change traditions. In that respect, the educational materials available often are not optimal. Much material still focuses on hospital care and there is a lack of modern visual (digital) material that can be used for this new curricular focus outside acute care settings, so it is important that more of these context-specific educational materials will be developed (Cant and Cooper, 2014; Petit dit Dariel et al., 2013; Williamson et al., 2020).

4.1. Strengths and limitations

A strength of this research is its high response rate and the fact that the results and conclusions are based on the large number of 6613 qualitative descriptions of interventions. Another strength is that the respondents had no idea of the exact purpose of the study (with regard to the curriculum themes), which benefits its validity. A limitation is that, despite the fact that vignettes offer the opportunity to systematically measure students' choices, they still remain written cases and are not real patients. Also, the intervention group consisted of one student cohort and measuring in more cohorts and institutions would lead to a more precise picture. Finally, the results of this study have limited generalizability as the study was conducted at a single institution.

4.2. Implications for further research

There are many interesting subjects from different points of view, related to this topic, that can be explored further. To give a few examples: from the students' viewpoint, a study on the topic if/to what extend they are aware of the new nurses' roles when they make a choice for a nursing career and how this knowledge has an influence on their motivation for the profession. Educators can study the type of methods that would be most effective in preparing students for a successful placement in community care. Student mentors in care institutions may struggle with the question how they can optimally facilitate students in their learning process in a situation with tension between a high workload and the opportunity for students to experiment with the new themes in the caregiving, which is time-consuming.

5. Conclusion

A more 'community-oriented' baccalaureate nursing curriculum containing new themes related to community care was successful in influencing students' intervention choice, in the sense that (1) students that experienced the new curriculum more often chose care interventions related to the new themes and (2) more students chose the new themes. However, more 'traditional' intervention choices are still most favourite. Seeing this shift in how students choose their care interventions as a step in the right direction and considering that such developments take time, it can be expected that the community care field in the longer term will benefit from better educated new graduates, who are able to take on the multi-faced role of an independent caregiver in people's homes.

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CRediT authorship contribution statement

Margriet van Iersel: Conceptualization, Methodology, Formal analysis, Writing – original draft, Investigation, Data curation, Project administration. **Marjon van Rijn**: Methodology, Formal analysis, Writing – review & editing. **Rien de Vos**: Conceptualization, Methodology, Writing – review & editing. **Paul Kirschner**: Writing – review & editing, Supervision. **Wilma Scholte op Reimer**: Writing – review & editing, Supervision, Funding acquisition.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability

The dataset supporting the conclusions of this article is available in the Figshare repository: https://doi.org/10.21943/auas.13122752.v1. Please contact opensciencesupport@hva.nl if you want to request the data from this study.

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Ethical approval

The Ethical Review Board of the Open University of The Netherlands approved the study (reference U2014/07279/HVM). The board concluded that the study is in line with the ethical codes for research in Human Subjects.

Author's contributions

MvI was involved in design, collection, analysis and interpretation of the data, and writing. MvR contributed to the analysis and interpretation of the data. MvR, RdV, CL, PK and WSoR reviewed the manuscript and made significant contributions to its content. All the authors read and approved the final manuscript.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.nepr.2022.103410.

References

AACN, 2008. The Essentials of Baccalaureate Education for Professional Nursing Practice. United States of America: American Association of Colleges of Nursing, Washington DC.

Afshar, S., Roderick, P.J., Kowal, P., Dimitrov, B.D., Hill, A.G., 2015. Multimorbidity and the inequalities of global ageing: a cross-sectional study of 28 countries using the World Health Surveys. BMC Public Health 15, 776. https://doi.org/10.1186/s12889-015-2008-7.

Altman, S.H., Stith Butler, A., Shern, L., 2015. The Future of Nursing: Leading change, advancing health. Institute of Medicine, National Academies of Sciences, Engineering and Medicine, Washington, DC.

Anderson, E.E., Kiger, A.M., 2008. I felt like a real nurse - student nurses out on their own. Nurse Educ. Today 28 (4), 443–449. https://doi.org/10.1016/j.nedt.2007.07.013.

Babenko-Mould, Y., Ferguson, K., Atthill, S., 2016. Neighbourhood as community: a qualitative descriptive study of nursing students' experiences of community health nursing. Nurse Educ. Pr. 17, 223–228. https://doi.org/10.1016/j.nepr.2016.02.002.

Bjørk, I.T., Berntsen, K., Brynildsen, G., Hestetun, M., 2014. Nursing students' perceptions of their clinical learning environment in placements outside traditional hospital settings. J. Clin. Nurs. 23, 2958–2967. https://doi.org/10.1111/jocn.12532.

Bloomfield, J.G., Aggar, C., Thomas, T.H.T., Gordon, C.J., 2017. Factors associated with final year nursing students' desire to work in the primary health care setting: findings from a national cross-sectional survey. Nurse Educ. Today 61, 9–14. https://doi.org/10.1016/j.nedt.2017.10.001.

Byfield, Z., East, L., Conway, J., 2019. An integrative literature review of pre-registration nursing students' attitudes and perceptions towards primary healthcare. Collegian. https://doi.org/10.1016/j.colegn.2019.01.004.

Calma, K.R.B., Halcomb, E., Stephens, M., 2019. The impact of curriculum on nursing students' attitudes, perceptions and preparedness to work in primary health care: an integrative review. Nurse Educ. Pr. 39, 1–10. https://doi.org/10.1016/j.nepr.2019.07.006.

Cant, R.P., Cooper, S.J., 2014. Simulation in the Internet age: the place of web-based simulation in nursing education. An integrative review. Nurse Educ. Today 34 (12), 1435–1442. https://doi.org/10.1016/j.nedt.2014.08.001.

Cingel der, M.V., Bulle-Smid, L., Holterman, S., Prins, H., Keuning, W., Hettinga, M., 2021. From clinical reasoning to ehealth interventions; a study on how nurses assess care and ehealth in home care. Nurse Educ. Pr. 50, 102925 https://doi.org/10.1016/j.nepr.2020.102925.

ENhANCE Project Group, 2019. Family and Community Nursing European Curriculum - first release.

Field, A., 2015. Discovering statistics using IBM SPSS. SAGE, London.

Gould, D., 1996. Using vignettes to collect data for nursing research studies: how valid are the findings? J. Clin. Nurs. 5, 207–212.

Green, S.B., 1991. How many subjects does it take to do a regression analysis. Multivar. Behav. Res. 26, 499–510.

Huber, M., Knottnerus, J.A., Green, L., Van der Horst, H., Jadad, A.R., Kromhout, D., et al., 2011. How should we define health? BMJ 343, d4163. https://doi.org/10.1136/bmj.d4163.

Huber, M., Van Vliet, M., Giezenberg, M., Winkens, B., Heerkens, Y., Dagnelie, P.C., et al., 2016. Towards a 'patient-centred' operationalisation of the new dynamic concept of health: a mixed methods study. BMJ Open 6 (1), e010091. https://doi.org/10.1136/bmjopen-2015-010091.

Hughes, R., Huby, M., 2004. The construction and interpretation of vignettes in social research. Soc. Work Soc. Sci. Rev. 11 (1), 36–51.

Illingworth, A., Aranda, K.F., De Goeas, S.M., Lindley, P.J., 2013. Changing the way that I am: Students experience of educational preparation for advanced nursing roles in the community. Nurse Educ. Pr. 13, 338–343. https://doi.org/10.1016/j.nepr.2012.09.009.

Jubas, K., Knutson, P., 2012. Seeing and Be(liev)ing- how nursing and medical students understand representations of their professions. Stud. Educ. Adults 44 (1), 85–100.

Kelly, J., Fealy, G.M., Watson, R., 2012. The image of you: constructing nursing identities in YouTube. J. Adv. Nurs. 68 (8), 1804–1813. https://doi.org/10.1111/j.1365-2648.2011.05872.x.

Kenyon, L., Peckover, S., 2008. 'A Juggling Act': an analysis of the impact of providing clinical placements for pre-registration students on the organisation of community nursing and health visiting work. Nurse Educ. Today 28 (2), 202–209. https://doi.org/10.1016/j.nedt.2007.03.014.

Kirkpatrick, D.L., Kirkpatrick, J.D., 2006. Evaluating Training Programs: The four levels, 3rd edition.,. Berrett-Koehler Publishers, San Francisco CA.

Lambregts, J., Grotendorst, A., Van Merwijk, C., 2014. Bachelor Nursing 2020. Bureau Lambregts in Collaboration with Committee BN 2020. Rotterdam, The Netherlands.

Landis and Koch, 1977, in Streiner, D.L., Norman, G.R., 2008. Health measurement scales; a practicalguide to their development and use. 4th ed. Oxford University Press, Oxford.

Lewis, R., Kelly, S., 2018. Changing hearts and minds: examining student nurses' experiences and perceptions of a general practice placement through a 'community of practice' lens. BMC Med. Educ. 18 (1), 67. https://doi.org/10.1186/s12909-018-1182-6.

Lewis, R., Ibbotson, R., Kelly, S., 2019. Student nurses' career intentions following placements in general practice through the advanced training practices scheme (ATPS): findings from an online survey. BMC Med. Educ. 19 (1), 448. https://doi.org/10.1186/s12909-019-1880-8.

McKenna, L., Brooks, I., Vanderheide, R., 2017. Graduate entry nurses' initial perspectives on nursing: content analysis of open-ended survey questions. Nurse Educ. Today 49, 22–26. https://doi.org/10.1016/j.nedt.2016.11.004.

Murphy, F., Rosser, M., Bevan, R., Warner, G., Jordan, S., 2012. Nursing students' experiences and preferences regarding hospital and community placements. Nurse Educ. Pr. 12, 170–175. https://doi.org/10.1016/j.nepr.2011.12.007.

NG, P.Y., Liaw, S.Y., Ong, S.F., Lau, S.T., 2019. Singaporean nursing students' perceptions of a career in community nursing. Int. Nurs. Rev. 00, 1–9.

NMC, 2010. Standard for pre-registration nursing education. Nursing & Midwifery Council, London.

Peters, K., McInnes, S., Halcomb, E., 2015. Nursing students' experiences of clinical placement in community settings: a qualitative study. Collegian 22 (2), 175–181. https://doi.org/10.1016/j.colegn.2015.03.001.

Petit dit Dariel, O.J., Raby, T., Ravaut, F., Rothan-Tondeur, M., 2013. Developing the serious games potential in nursing education. Nurse Educ. Today 33, 1569–1575. https://doi.org/10.1016/j.nedt.2012.12.014.

Phafoli, S.H., Christensen-Majid, A., Skolnik, L., Reinhardt, S., Nyangu, I., Whalen, M., et al., 2017. Student and preceptor perceptions of primary health care clinical placements during pre-service education: qualitative results from a quasi-experimental study. Nurse Educ. Pr. 28, 224–230. https://doi.org/10.1016/j.nepr.2017.10.012.

Phillips, J., Cooper, K., Rosser, E., Scammell, J., Heaslip, V., White, S., et al., 2015. An exploration of the perceptions of caring held by students entering nursing programmes in the United Kingdom: a longitudinal qualitative study phase 1. Nurse Educ. Pr. 15 (6), 403–408. https://doi.org/10.1016/j.nepr.2015.05.004.

Polit, D.F., Beck, C.T., 2008. Nursing Research; Generating and Assessing Evidence for Nursing Practice, eighth ed. Wolters Kluwer Health, Philadelphia PA.

Potter, G., Clarke, T., Hackett, S., Little, M., 2013. Nursing students and geriatric care: the influence of specific knowledge on evolving values, attitudes and actions. Nurse Educ. Pr. 13, 449–453. https://doi.org/10.1016/j.nepr.2013.02.007.

Sela, Y., Grinberg, K., Shapiro, Y., Nissanholtz-Gannot, R., 2020. A cross-sectional study on preferred employment settings of final-year nursing students in Israel. Hum. Resour. Health 18 (1), 53. https://doi.org/10.1186/s12960-020-00496-6.

Tebeje, T.H., Klein, J., 2021. Applications of e-health to support person-centered health care at the time of COVID-19 pandemic. Telemed. J. E Health 27 (2), 150–158. https://doi.org/10.1089/tmj.2020.0201.

Van Iersel, M., Latour, C.H., De Vos, R., Kirschner, P.A., Scholte Op Reimer, W.J.M., 2016. Nursing students' perceptions of community care and other areas of nursing practice - a review of the literature. Int. J. Nurs. Stud. 61, 1–19. https://doi.org/10.1016/j.ijnurstu.2016.05.011.

Van Iersel, M., Latour, C.H.M., Van Rijn, M., De Vos, R., Kirschner, P.A., Scholte op Reimer, W.J.M., 2018. Factors underlying perceptions of community care and other healthcare areas in first-year baccalaureate nursing students: a focus group study. Nurse Educ. Today 66, 57–62. https://doi.org/10.1016/j.nedt.2018.04.004.

Van Iersel, M., De Vos, R., Latour, C.H.M., Kirschner, P.A., Scholte op Reimer, W.J.M., 2019. Influencing nursing students' perceptions of community care with curriculum redesign; a quasi-experimental cohort study. BMC Med. Educ. 19, 299. https://doi.org/10.1186/s12909-019-1733-5.

Williamson, G.R., Bunce, J., Kane, A., Jamison, C., Clarke, D., 2020. Investigating the implementation of a collaborative learning in practice model of nurse education in a community placement cluster: a qualitative study. Open Nurs. J. 14 (1), 39–48. https://doi.org/10.2174/1874434602014010039.