Appendix 1. Overall work experience and factor-related nursing competence (n=837)

Factor	Influence Variable	*Mean [95% CI]	z-value	‡p-value	Effect size r
	Overall work experience (OWE) † [X²=25.096(5); p<.001]				
Factor 1	OWE group I (≤ 1 year) OWE group 2 (1 to ≤ 2 years) OWE group 3 (≥ 2 to ≤ 5 years) OWE group 4 (≥ 5 to ≤ 10 years) OWE group 5 (≥ 10 to ≤ 20 years) OWE group 6 (≥ 20 years) OWE 1 vs OWE 6 OWE 3 vs OWE 6 OWE 5 vs OWE 6	82.21 [80.10; 84.33] 83.79 [81.05; 86.51] 83.38 [81.73; 85.03] 84.98 [83.13; 86.83] 83.53 [81.78; 85.29] 87.00 [85.67; 88.32]	-3.976 -3.733 -3.095	.001 .003 .030	.23 .19 .15
	Overall work experience (OWE) † [X²=22.119(5); p<.001]				
Factor 2	OWE group I (≤ 1 year) OWE group 2 (1 to ≤ 2 years) OWE group 3 (>2 to ≤ 5 years) OWE group 4 (>5 to ≤ 10 years) OWE group 5 (>10 to ≤ 20 years) OWE group 6 (>20 years) OWE I vs OWE 4 OWE I vs OWE 6 OWE 3 vs OWE 6	76.77 [73.86; 79.69] 79.10 [75.97; 82.24] 79.84 [77.92; 81.76] 82.42 [80.62; 84.53] 81.47 [79.56; 83.39] 82.81 [81.11; 84.52]	-3.036 -3.836 -2.964	.036 .002 .046	.21 .22 .15
	Overall work experience (OWE) ${}^{\dagger}[X^2=26.527(5); p<.001]$				
Factor 3	OWE group I (≤ 1 year) OWE group 2 (1 to ≤ 2 years) OWE group 3 (≥ 2 to ≤ 5 years) OWE group 4 (≥ 5 to ≤ 10 years) OWE group 5 (≥ 10 to ≤ 20 years) OWE group 6 (≥ 20 years) OWE I vs OWE I OWE I vs OWE I OWE I vs OWE I	84.89 [82.33; 87.44] 88.61 [86.28; 90.95] 88.37 [86.83; 89.92] 89.89 [88.23; 91.56] 89.24 [87.79; 90.69] 90.17 [88.71; 91.63]	-3.429 -3.164 -4.625 -3.147	.009 .023 <.001 .025	.24 .19 .26 .16
	Overall work experience (OWE) † [x^2 =10.157(5); p =.071]				
Factor 4	OWE group 1 (≤ 1 year) OWE group 2 (1 to ≤ 2 years) OWE group 3 (>2 to ≤ 5 years) OWE group 4 (>5 to ≤ 10 years) OWE group 5 (>10 to ≤ 20 years) OWE group 6 (>20 years)	90.41 [88.44; 92.38] 89.07 [86.72; 91.42] 90.23 [88.76; 91.70] 89.77 [88.10; 91.43] 89.76 [88.22; 91.30] 91.43 [90.15; 92.70]			
	Overall work experience (OWE) † [x²=23.337(5); p<.001]				
Factor 5	OWE group $1 \le 1$ year) OWE group $2 (1 \text{ to } \le 2 \text{ years})$ OWE group $3 (>2 \text{ to } \le 5 \text{ years})$ OWE group $4 (>5 \text{ to } \le 10 \text{ years})$ OWE group $5 (>10 \text{ to } \le 20 \text{ years})$ OWE group $6 (>20 \text{ years})$	82.26 [79.72; 84.80] 84.04 [81.31; 86.76] 83.08 [81.48; 84.67] 85.80 [83.93; 87.67] 85.09 [83.46; 86.72] 86.88 [85.50; 88.25]			
	OWE 1 vs OWE 6 OWE 2 vs OWE 6	. , .	-3.430 -3.966	.009 .001	.19 .23

[#] Factor-related extent of nursing competence † Kruskal-Wallis-test for independent samples (significance level at p≤05) [‡] Only subgroup differences with significant Bonferroni corrected p-values are presented in the table $^{\Psi}$ Pearson correlation coefficient

Appendix 2. Experience in current medical discipline and factor-related nursing competence (n=821)

Append	ix 2. Experience in current medical disciplin	ie ana jacior-reiaiea narsing c	competence	(n-021)	¥Effect
Factor	Influence Variable	*Mean [95% CI]	z-value	‡p-value	size r
	Experience in current discipline (ECD) † [X²=24.781(5); p<.001]				
Factor 1	ECD group 1 (\leq 1 year) ECD group 2 (1 to \leq 2 years) ECD group 3 ($>$ 2 to \leq 5 years) ECD group 4 ($>$ 5 to \leq 10 years) ECD group 5 ($>$ 10 to \leq 20 years) ECD group 6 ($>$ 20 years) ECD 1 vs ECD 5 ECD 1 vs ECD 6 ECD 2 vs ECD 6	81.85 [79.94; 83.76] 82.35 [79.97; 84.75] 84.60 [83.07; 86.14] 84.93 [83.35; 86.52] 85.73 [84.02; 87.45] 87.45 [85.54; 89.37]	-3,514 -4,161 -3,328	<.001 <.001 .001	.20 .28 .24
	Experience in current discipline (ECD) ${}^{\dagger}[X^2=32.246(5): p<.001]$				
Factor 2	ECD group 1 (\leq 1 year) ECD group 2 (1 to \leq 2 years) ECD group 3 (\geq 2 to \leq 5 years) ECD group 4 ($>$ 5 to \leq 10 years) ECD group 5 ($>$ 10 to \leq 20 years) ECD group 6 ($>$ 20 years) ECD 1 vs ECD 4 ECD 1 vs ECD 5 ECD 1 vs ECD 5 ECD 1 vs ECD 5	76.38 [73.34; 78.81] 78.37 [75.67; 81.06] 81.04 [79.26; 82.80] 82.71 [80.96; 84.46] 83.19 [81.22; 85.14] 83.06 [80.45; 85.68]	-3.972 -4.563 -4.158 -3.098	.001 <.001 <.001 .002	.23 .27 .28 .19
	Experience in current discipline (ECD) ${}^{\dagger}[X^2=30.476(5); p<.001]$				
Factor 3	ECD group 1 (\leq 1 year) ECD group 2 (1 to \leq 2 years) ECD group 3 (\Rightarrow 2 to \leq 5 years) ECD group 4 (\Rightarrow 5 to \leq 10 years) ECD group 5 (\Rightarrow 10 to \leq 20 years) ECD group 6 (\Rightarrow 20 years) ECD group 6 (\Rightarrow 20 years) ECD 1 vs ECD 3 ECD 1 vs ECD 4 ECD 1 vs ECD 5 ECD 1 vs ECD 6	85.29 [83.34; 87.23] 88.74 [86.85; 90.63] 89.19 [87.68; 90.71] 89.72 [88.26; 91.19] 89.95 [88.35; 91.55] 90.48 [88.24; 92.72]	-3.004 -3.994 -4.522 -4.814	.040 .001 <.001 <.001	.18 .23 .26 .32
	Experience in current discipline (ECD) $^{\dagger}[x^2=15.501(5); p=.008]$				
Factor 4	ECD group 1 (\leq 1 year) ECD group 2 (1 to \leq 2 years) ECD group 3 (\Rightarrow 2 to \leq 5 years) ECD group 4 (\Rightarrow 5 to \leq 10 years) ECD group 5 (\Rightarrow 10 to \leq 20 years) ECD group 6 (\Rightarrow 20 years)	89.74 [88.03; 91.45] 88.20 [86.04; 90.37] 90.82 [89.43; 92.22] 89.89 [88.47; 91.30] 91.02 [89.50; 92.54] 91.80 [89.79; 93.81]	2245	001	22
	ECD 2 vs ECD 6 Experience in current discipline (ECD)		-3.245	.001	.23
	${}^{\dagger}[X^2=27.790(5); p<.001]$	02.02.570.02.04.123			
Factor 5	ECD group 1 (\leq 1 year) ECD group 2 (1 to \leq 2 years) ECD group 3 ($>$ 2 to \leq 5 years) ECD group 4 ($>$ 5 to \leq 10 years) ECD group 5 ($>$ 10 to \leq 20 years) ECD group 6 ($>$ 20 years)	82.02 [79.92; 84.12] 82.52 [79.95; 85.09] 84.30 [82.86; 85.74] 85.94 [84.41; 87.48] 86.70 [85.04; 88.37] 87.57 [85.58; 89.56]			
	ECD 1 vs ECD 4 ECD 1 vs ECD 5		-2.999 -3.805	.003	.17
	ECD 1 vs ECD 6 ECD 2 vs ECD 6		-3.870 -3.077	.002 .031	.26 .22

[#] Factor-related extent of nursing competence

† Kruskal-Wallis-test for independent samples (significance level at p≤05)

† Only subgroup differences with significant Bonferroni corrected p-values are presented in the table

Pearson correlation coefficient

Appendix 3. Current medical discipline and factor-related nursing competence (n=767)

търсни	ar o. c meaten discipine dia	a factor-retated nursing competence (n=	, 0, ,		¥Effect
Factor	Influence Variable	*Mean [95% CI]	z-value	‡p-value	size r
Factor 1	Current medical discipline ${}^{\dagger}[X^2=2.966(2); p=.227]$				
	Surgical Conservative Interdisciplinary	84.64 [83.42; 85.30] 84.36 [83.25; 85.48] 84.48 [82.13; 86.82]			
	Current medical discipline ${}^{\dagger}[x^2=1.336 (2); p=.513]$				
Factor 2	Surgical Conservative Interdisciplinary	80.19 [78.73; 81.65] 81.44 [80.15; 82.73] 81.15 [78.06; 84.23]			
Factor 3	Current medical discipline ${}^{\dagger}[X^2=.891(2); p=.641]$				
	Surgical Conservative Interdisciplinary	88.49 [87.31; 89.52] 89.47 [88.45; 90.49] 88.25 [85.77; 90.73]			
Factor 4	Current medical discipline † [X²=.678(2); p=.712]				
	Surgical Conservative Interdisciplinary	90.14 [89.00; 91.29] 90.39 [89.45; 91.34] 90.46 [88.13; 92.79]			
Factor 5	Current medical discipline ${}^{\dagger}[x^2=2.966(2); p=.227]$				
	Surgical Conservative	84.16 [82.97; 85.35] 85.32 [84.20; 86.44]			
	Interdisciplinary	85.46 [82.96; 87.97]			

 $^{^{\}sharp}$ Factor-related extent of nursing competence † Kruskal-Wallis-test for independent samples (significance level at p\$\leq\$.05) $^{\sharp}$ Only subgroup differences with significant Bonferroni corrected p-values are presented in the table $^{\$}$ Pearson correlation coefficient

Appendix 4. Type of nursing education and factor-related nursing competence (n=840)

пррепа	1x 4. Type of nursing education and factor-rea	ited mirsting competence (n-	-010)		¥Effect
Factor	Influence Variable	*Mean [95% CI]	z-value	‡p-value	size r
Factor 1	Type of nursing education ${}^{\dagger}[X^2=10.374(4); p=.035]$				
	Vocational training (graduation < 2001) Vocational training (graduation 2001 – 2022) Combined academical nursing education Academical Nursing education Abbreviated vocational training	86.02 [84.70; 87.34] 84.23 [83.17; 85.29] 83.12 [80.81; 85.42] 84.02 [81.52; 86.52] 82.88 [78.72; 87.02]			
	Type of nursing education ${}^{\dagger}[X^2=6.352(4); p=.174]$				
Factor 2	Vocational training (graduation < 2001) Vocational training (graduation 2001 – 2022) Combined academical nursing education Academical Nursing education Abbreviated vocational training	81.56 [79.93; 83.20] 81.56 [80.34; 82.78] 79.80 [77.20; 82.42] 78.16 [74.66; 81.67] 80.39 [75.83; 84.95]			
	Type of nursing education † [x=7.193(4); p=.126]				
Factor 3	Vocational training (graduation < 2001) Vocational training (graduation 2001 – 2022) Combined academical nursing education Academical Nursing education Abbreviated vocational training	89.31 [87.92; 90.71] 89.24 [88.27; 90.20] 88.00 [86.01; 90.00] 88.07 [85.49; 90.65] 88.01 [84.09; 91.94]			
Factor 4	Type of nursing education ${}^{\dagger}[x^2=7.087(4); p=.131]$				
	Vocational training (graduation < 2001) Vocational training (graduation 2001 – 2022) Combined academical nursing education Academical Nursing education Abbreviated vocational training	91.16 [89.95; 92.37] 89.98 [89.02; 90.94] 89.87 [87.79; 91.95] 90.03 [87.68; 92.37] 89.37 [86.07; 92.66]			
Factor 5	Type of nursing education ${}^{\dagger}[X^2=7.087(4); p=.131]$				
	Vocational training (graduation < 2001) Vocational training (graduation 2001 – 2022) Combined academical nursing education Academical Nursing education Abbreviated vocational training	85.85 [84.50; 87.20] 84.99 [83.97; 86.01] 81.95 [79.16; 84.73] 85.26 [82.57; 87.95] 85.56 [81.90; 89.21]			

 $^{^{\}rm g}$ Factor-related extent of nursing competence $^{\rm f}$ Kruskal-Wallis-test for independent samples (significance level at p≤05) $^{\rm g}$ Only subgroup differences with significant Bonferroni corrected p-values are presented in the table $^{\rm g}$ Pearson correlation coefficient

Appendix 5. Legally regulated further qualifications and factor-related nursing competence (n=841)

Appendix 5. Legally regulated further qualifications and factor-related nursing competence (n=841)						
Factor	Influence Variable	*Mean [95% CI]	z-value	‡p-value	Effect size r	
	Legally regulated further qualifications ${}^{\dagger}[X^2=8.700(3); p=.034]$					
Factor 1	No further qualification (NoFQ) Specialization (SP) (≥800 hours) Further qualification (FQ) (160 – 799 hours) Specialization AND further qualification (SPFQ)	84.16 [83.28; 85.04] 84.92 [82.20; 87.63] 85.66 [84.07; 87.25] 89.26 [83.51; 95.00]				
	Legally regulated further qualifications ${}^{\dagger}[X^2=36.153(3); p<.001]$					
Factor 2	No further qualification (NoFQ) Specialization (SP) (≥800 hours) Further qualification (FQ) (160 – 799 hours) Specialization AND further qualification (SPFQ) NoFQ vs FQ NoFQ vs SPFQ	79.51 [78.46; 80.57] 82.97 [79.72; 86.21] 84.90 [83.17; 86.64] 88.66 [83.53; 93.79]	-5.226 -3.136	<.001 .010	.19 .13	
	Legally regulated further qualifications		3.130	.010	.13	
Factor 3	† [X=11.203(3); p=.011] No further qualification (NoFQ) Specialization (SP) (≥800 hours) Further qualification (FQ) (160 − 799 hours) Specialization AND further qualification (SPFQ) NoFQ vs FQ	88.40 [87.54; 89.26] 89.31 [86.39; 92.23] 90.76 [89.36; 92.16] 91.11 [85.82; 96.40]	-3.062	.013	.11	
	Legally regulated further qualifications ${}^{\dagger}[X^2=8.555(3); p=.036]$					
Factor 4	No further qualification (NoFQ) Specialization (SP) (≥800 hours) Further qualification (FQ) (160 – 799 hours) Specialization AND further qualification (SPFQ)	89.72 [88.89; 90.55] 91.53 [89.52; 93.53] 91.69 [90.43; 92.94] 92.06 [86.00; 98.12]				
Factor 5	Legally regulated further qualifications ${}^{\dagger}[X^2=11.680(3); p=.009]$					
	No further qualification (NoFQ) Specialization (SP) (2800 hours) Further qualification (FQ) (160 – 799 hours) Specialization AND further qualification (SPFQ)	84.25 [83.35; 85.16] 85.96 [83.49; 88.43] 87.02 [85.53; 88.53] 88.73 [83.20; 94.25]				
	NoFQ vs FQ	00.75 [05.20, 74.25]	-3.022	.015	.11	

[#] Factor-related extent of nursing competence

† Kruskal-Wallis-test for independent samples (significance level at p≤05)

† Only subgroup differences with significant Bonferroni corrected p-values are presented in the table

† Pearson correlation coefficient

Appendix 6. Legally required non-formal education and factor-related nursing competence (n=556)

Factor	Influence Variable	*Mean [95% CI]	z-value	‡p-value	Effect size r
Factor 1	Legally required non-formal education (LNE)				
	$ LNE \ group \ 1 \ (\le 60 \ hours \ of \ LNE \ across \ last \ 5 \ years) $ $LNE \ group \ 2 \ (> 60 \ hours \ of \ LNE \ across \ last \ 5 \ years) $	84.15 [82.37; 85.92] 86.21 [84.88; 87.02]			
	Legally required non-formal education (LNE)				
Factor 2	LNE group 1 (< 60 hours of LNE across last 5 years) LNE group 2 (> 60 hours of LNE across last 5 years) LNE 1 vs LNE 2	79.86 [77.74; 81.99] 83.77 [82.22; 85.32]	2.925	.003	.14
	Legally required non-formal education (LNE)				
Factor 3	LNE group 1 (≤ 60 hours of LNE across last 5 years) LNE group 2 (> 60 hours of LNE across last 5 years) LNE 1 vs LNE 2	88.14 [86.37; 89.91] 91.35 [90.19; 92.51]	3.023	.003	.15
Factor 4	Legally required non-formal education (LNE)				
	LNE group 1 (≤ 60 hours of LNE across last 5 years) LNE group 2 (> 60 hours of LNE across last 5 years) LNE 1 vs LNE 2	88.72 [86.89; 90.56] 91.54 [90.41; 92.68]	2.049	.040	.10
	Legally required non-formal education (LNE)				
Factor 5	LNE group 1 (≤ 60 hours of LNE across last 5 years) LNE group 2 (> 60 hours of LNE across last 5 years)	84.34 [82.62; 86.05] 86.74 [85.37; 88.10]			
	LNE 1 vs LNE 2	£ ,	2.255	.024	.11

[#] Factor-related extent of nursing competence [‡] Mann-Whitney-U-test for independent samples; only subgroup differences with significant p-values are presented in the table [‡] Pearson correlation coefficient

Appendix 7. Curriculum-related understanding of nursing care and factor-related nursing competence (n=840)

	Influence Variable				¥Effect
Factor	Influence variable	*Mean [95% CI]	z-value	[‡] p-value	size r
	Curriculum-related understanding of nursing care (CUNC)				
Factor 1	CUNC group 1 (pathogenetic, graduation < 2001)	86.02 [84.70; 87.34]			
	CUNC group 2 (salutogenetic, graduation 2001 – 2022)	84.00 [83.11; 84.88]			
	CUNC 1 vs CUNC 2		-2.911	.004	.10
Factor 2	Curriculum-related understanding of nursing care (CUNC)				
	CUNC group 1 (pathogenetic, graduation < 2001)	86.02 [84.70; 87.34]			
	CUNC group 2 (salutogenetic, graduation 2001 – 2022)	84.00 [83.11; 84.88]			
Factor 3	Curriculum-related understanding of nursing care (CUNC)				
	CUNC group 1 (pathogenetic, graduation < 2001)	89.31 [87.92; 90.71]			
	CUNC group 2 (salutogenetic, graduation 2001 – 2022)	88.90 [88.09; 89.71]			
	Curriculum-related understanding of nursing care (CUNC)				
Factor 4	CUNC group 1 (pathogenetic, graduation < 2001)	91.16 [89.95; 92.37]			
	CUNC group 2 (salutogenetic, graduation 2001 – 2022)	89.93 [89.14; 90.72]			
	CUNC 1 vs CUNC 2		-2.512	.012	.09
Factor 5	Curriculum-related understanding of nursing care (CUNC)				
	CUNC group 1 (pathogenetic, graduation < 2001)	85.85 [84.50; 87.20]			
	CUNC group 2 (salutogenetic, graduation 2001 – 2022)	84.70 [83.83; 85.58]			

 $^{^{\#}}$ Factor-related extent of nursing competence ‡ Mann-Whitney-U-test for independent samples; only subgroup differences with significant p-values are presented in the table $^{\aleph}$ Pearson correlation coefficient