

Modified Van Gelderen Family Care Rubric: Assisting Nursing Staff and Students in
Development of Family Care and Communication Skills

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Family-focused care and communication is recognized as best practice when caring for patients and families (Van Gelderen, Krumwiede & Christian, 2016) and has been suggested to improve healthcare outcomes (Christian, 2018; Mann, 2016; & Chesla, 2010); reduce healthcare costs (Coe, Guo, Konetzka, & Van Houtven, 2019); and improve health-related quality of life (Lämås, Sundin, Jacobsson, Saveman, & Östlund, 2016). A critical component of skill development is consistent educator feedback to develop family nursing practice, however, there is a lack of evidence-based tools that frame feedback and evaluate nursing actions (Van Gelderen et al., 2016). To address this gap, the Van Gelderen Family Care Rubric (VGFCR) was developed to enhance learning experiences and skill development of family care and communication skills. In 2016, it was tested with Baccalaureate nursing students during their simulation learning experiences (Van Gelderen et al.). The use of the family-care rubric provides an opportunity to bridge the gap between the science of family nursing and clinical practice. In addition, it allows educators to evaluate learners' performance and competency, and provide consistent feedback.

The VGFCR guides evaluation within two domains: family communication and family as client. Within each domain, multiple family constructs can be evaluated and serve as prompts for feedback. The VGFCR (Van Gelderen et al., 2016) has been tested and validated with student nurses and found to be a valuable tool. The importance of family-focused care warranted further research to extend validation to other professional groups. This paper presents a multi-site study to validate the modified VGFCR and test transferability to different audiences, namely undergraduate child-nurse and midwifery students, in the United Kingdom (UK); undergraduate obstetric-pediatric students and nursing staff specializing in obstetrics and pediatrics in the United States (US).

Background

The use of simulation in nursing education has increased in recent years and has been validated by the National Council of State Boards of Nursing (NCSBN). The NCSBN findings demonstrated effectiveness of learning through simulation and indicated that up to 50% of traditional clinical experience can be effectively substituted with simulation in all prelicensure core nursing courses (Hayden, Smiley, Alexander, Kardong-Edgren & Jeffries, 2014). Other countries have adopted a similar approach, in the UK, the Nursing and Midwifery Council (NMC) have now lifted the 300 hour cap on simulated learning, . However they emphasized that universities need to ensure technology enhanced and simulation-based learning is used ‘effectively and proportionately’ (NMC, 2018).

Increased use of simulation has led to a demand for reliable and valid evaluation tools to measure student learning (Kardong-Edgren, Adamson & Fitzgerald, 2010). Educational rubrics provide predetermined criteria and expectations to the student that educators can utilize to determine students’ competence and frame feedback. In a review of published simulation evaluation instruments, Adamson, Kardong-Edgren and Wilhaus (2013) did not identify any which focused on family care, the Creighton Simulation Evaluation Instrument (C-SEI) does focus on communication skills, but does not measure family communication.

Sample & Setting

Purposive samples of four cohorts of nursing and midwifery students (n= 96) and 2 cohorts of nursing staff (n = 69) yielded 165 scored participants. There were a total of 170 nursing staff and student raters with one group of 40 US undergraduate students participated in both obstetrical and pediatric simulations giving a total of (N = 210). Between the six cohorts,

88 videos were recorded and 86 were scored, two videos were discarded due to poor quality (Table 1).

Methods

For the purposes of this study, researchers retested a modified VGFCR with an international sample including practicing obstetrical and pediatric nurses and pediatric, obstetrical, and midwifery students. . Two hypothesis were developed for this study.

Hypotheses:

1. There will be greater overall average VGFCR scores for participants involved in pediatric simulations than obstetrical simulations.
2. There will be no difference in overall VGFCR average scores by researchers vs. participants.

Psychometric testing followed a four-phase design as outlined below.

Phase one: Content Expert Review

The original VGFCR (Van Gelderen et al., 2016) was reviewed for content validity. Content expert review was solicited to reaffirm and ensure all “major elements relevant to the constructs are being measured” (Burns & Grove, 2005, p. 377) from the 2016 study. This was an important process since no other validated family care and communication rubrics were identified in the literature review. Fourteen nursing family health and simulation experts were contacted, with 6 experts agreeing to participate in determining content validity utilizing the Swan & Hobbs method (Swan & Hobbs, 2018). Experts were sent a link to a Qualtrics ® survey and each expert reviewed each of the original 11 constructs within the VGFCR (Van Gelderen et al., 2016) for the following items: (a) relevancy of the statements within each individual

construct for family-focused care, (b) statements sufficiently describes each individual construct, (c) clarity of statements, and (d) readability of statements.

Once the international research team was identified, to ensure transferability to the international setting, the team was given the opportunity to review the rubric for face validity for acceptance that the statements within the rubric appear relevant (Lynn, 1986) with applicability and appropriate terminology for the UK. Following the second expert review, rubric modifications were completed based upon both expert groups' recommendations and from results within the 2016 (Van Gelderen et al.) study.

Rubric modifications included changing language within the 'eye contact' construct to be more inclusive of cultural differences and the 'terminology' construct definition was defined further with examples with intent to increase inter-rater reliability. Construct titles were shortened to provide clarity and an additional construct 'Summary & Validation' was added to ensure after a family conversation, the nurse verbally reflects back their desire to validate the family's wishes. Additionally, a VGFCR manual was designed by the chief investigator (Van Gelderen) to standardize use of the rubric among raters.

Phase Two: Clinical Partnerships & Simulation Scenario Development

The original study findings (Van Gelderen et al., 2016) and the modified VGFCR (*figure 1*) were presented at an international family nursing conference (Van Gelderen & Krumwiede, 2017). This presented an opportunity to develop international research collaborations. Four sites and six purposive samples were identified to test the modified VGFCR: two UK universities, one United States (US) university, an Eastern US children's hospital and a Midwestern US obstetrical hospital (Table 1).

Six simulation scenarios (three pediatric and three obstetric/newborn) were developed by the research team (Table 1). The CI formed four research groups yielding six additional nurse researchers with obstetrical, neonatal, pediatric, and simulation expertise to test the rubric at their perspective sites. The CI attended each research data collection site to ensure consistency and congruence with the simulation set-up, environment, actor roles, scenario progression, and data collection procedures.

Phase three: Ethical Considerations

The CI ensured that correct study procedures, coordination of site participant recruitment and appropriate organizational research permissions were met at each international site by the local principal investigator (PI). Participation was voluntary and participants were provided study procedures in advance of the simulation. Written consent was given as approved by the local ethics committees or institutional review board. Registered Nurses were paid by their employer and education credits were awarded. No researchers had grading authority over students and simulation performances did not impact students' academic grades.

Simulations were video recorded at each site, the PI collected the videos and stored them on their local, password-protected database where only the researchers had access. The videos are being stored for 1-3 years as required by each ethics committee.

Phase four: Data Collection & Psychometric Testing

Simulations at each site were facilitated by the PI and CI. The rubric was shared with potential student participants two weeks prior to the date of the study, staff participants were able to review the rubric the same day of utilization. On the day of the simulations, participants were guided through the use of the rubric by the CI and were asked to maintain independent thinking while scoring their peers.

A four hour simulation session was scheduled for all participants. All were orientated to the simulation environment and manikins prior to participation, if the group was unfamiliar. All participants were required to work in pairs to complete one of three clinical simulations relevant to their professional group. All participants actively participated in at least one scenario and observed at least two others. Participants were asked to care for simulated pediatric/obstetric/newborn manikins and/or actors who role-played patients (standardized patients) in the simulation suite. All simulations had 1-2 actors who played various family roles pertinent to the scenario (Simulation design, Table 1). Scenarios were developed to ensure that participants had the opportunity to demonstrate all twelve family care constructs. No limitation of time was placed on participants.

Simulations were live-streamed to a separate room where the peer participants observed simulations and independently scored the simulation participants using the rubric. Upon completion of the simulations, the two participants returned to the main group and the CI led a structured debriefing discussion guided by the VGFCR. Feedback was also obtained to clarify and develop construct meaning and scoring. Additional data was collected using two approaches:

1. Pre-simulation surveys: Participants completed a password protected, online Qualtrics ® pre-survey, that included demographics and perceptions of the importance of family communication and care skills, using provided iPads.
2. Simulation experience evaluation: all participants were asked to complete an anonymous simulation experience evaluation questionnaire using Qualtrics ® Survey, to explore the participants' experiences of learning and facilitation of the simulations.

Following the simulation days, seven nurse researchers were organized into groups of three and independently scored the video recordings utilizing the VGFCR. Researchers were able to refer to the manual, as needed. In-depth discussions facilitated consistency among researcher-raters. The CI scored all six purposive samples for consistency. Each researcher did not view more than three videos/day to maintain rigor and clarity while utilizing the rubric. The average length for each video recording was 15-20 minutes.

Table 1

Sample, Demographics, Setting, & Simulation Modalities Described

	Sample Size & Scored Participants	Demographics	Institution Type	Scenario with Medical Issues Family Members Involved & Needs Scenario Fidelity
Sample A- Undergraduate Children's Nursing Students <i>Site 1: England, United Kingdom</i>	n = 32 (24 scored)	Gender: Female 93.75%; Male 6.25% Race/Ethnicity: White 90.63%; Black African 3.12%; Black British 3.12%; Chinese 3.12% Other Degrees: LPN/LVN 18.52%; Associate degree nurse: 4%	Public Research University	<i>Scenario 1:</i> A 3 year old, male, with acute asthma <i>Family Member:</i> Mother (UK site) Grandmother (US sites) <i>Family Needs:</i> Concerned with child's shortness of breath and how to control it. <i>Fidelity:</i> High-fidelity: Sim Junior ® <i>Scenario 2:</i> Evolving case: Asthma controlled, family requiring discharge and medication teaching <i>Family Member:</i> Mother (UK site) Grandmother (US sites) <i>Family Needs:</i> Asthma knowledge deficit requiring teaching on medications, nebulizer utilization, signs & symptoms, community resources <i>High-fidelity:</i> Sim Junior ®
Sample B- Undergraduate Pediatric Nursing Students <i>Site 2: Midwest United States</i>	n = 40 (30 scored)	Gender: Female 80%; Male 20% Race/Ethnicity: White 82.5%; Mixed 5%; African American 5%; Asian 5%; Hispanic 5%	Public Research State University	<i>Scenario 3:</i> A 13 year old, female, presents with appendicitis and Autism Spectrum Disorder; physician abrupt with family stating child is in need of immediate surgery <i>Family Member:</i> Mother (UK site) Grandmother (US sites) <i>Family Needs:</i> Reassurance from nurse that child will be alright and child's Autistic communication needs are understood; calming after physician encounter
Sample C- Pediatric Nursing Staff <i>Site 3: Eastern United States</i>	n = 25 (21 scored)	Gender: Female 100% Race/Ethnicity: White 62.96%; Mixed 3.7%; African American 11.11%; Asian 7.41%; Arab 3.7%; Hispanic 3.7%; Latino 3.7% Baccalaureate Nurse: 100% Other Degrees: Associate degree nurse 20%; Nurse Practitioner 4%; MSN 4%, Informatics Nurse 5%;	Public Children's Research Hospital with Magnet Status	

		Mean Years Nursing Experience: 5.96		<i>Fidelity:</i> Standardized Patient
	Sample Size & Scored Participants	Demographics	Institution Type	Scenario with Medical Issues Family Members Involved & Needs Scenario Fidelity
Sample D- Undergraduate Midwifery Students <i>Site 4: England, United Kingdom</i>	n = 25 (12 scored)	Gender: Female 100% Race/Ethnicity: White 100% Other Degrees: LPN/LVN 9%	Public Research University	<i>Scenario 1:</i> A 19 year old prim gravida, 40 1/7 weeks gestation with gestational diabetes presenting in labor with shoulder dystocia <i>Family Member:</i> Father of baby (UK site) Grandfather of baby (US sites) <i>Family Needs:</i> Family member's first observed delivery, requiring coaching on his role, fearful of baby's shoulder dystocia <i>Fidelity:</i> UK site: Standardized Patient with Mama Natalie ® US Site: High-fidelity: Gaumard Victoria ®
Sample E- Undergraduate Obstetrical Nursing Students <i>Site 2: Midwest United States</i>	n = 40 (30 scored)	(Same group as Sample B) Gender: Female 80%; Male 20% Race/Ethnicity: White 82.5%; Mixed 5%; African American 5%; Asian 5%; Hispanic 5%	Public Research State University	<i>Scenario 2:</i> A 24 year old G2P1, 34 weeks gestation presenting with preeclampsia/eclampsia requiring emergent delivery; newborn requiring cardio-pulmonary resuscitation (CPR) <i>Family Member:</i> Father of baby (all sites)

Sample F-Obstetrical Nursing Staff: Representing three different facility sites <i>Site 2: Midwest United States</i>	n = 48 (48 scored)	Gender: Female 100% Race/Ethnicity: White 100% Baccalaureate Nurse: 94.87%; Other Degrees: Associate degree registered nurse 33.33%; Nurse Practitioner 2%; MSN, Nurse Leader 2%; Lab Technician 2%; Social Worker 2%; Doula 2% Mean Years Nursing Experience: 9.4	Public Research Medical Hospital with Magnet Status	<p><i>Family Needs:</i> Fearful of wife's condition during seizure and baby's condition during CPR; requiring reassurance from nurse that care is appropriate and patient needs are being met.</p> <p><i>Fidelity:</i> UK site: Standardized Patient with Mama Natalie ®</p> <p>US Site: High-fidelity: Gaumard Victoria ®</p> <p><i>Scenario 3:</i> A 32 year old G4P4, postpartum patient presenting with a postpartum hemorrhage two hours post-delivery; infant requiring care for hypothermia</p> <p><i>Family Member(s):</i> Husband & 12 year old daughter (UK site); Husband (US Site)</p> <p><i>Family Needs:</i> Husband concerned about wife's history of postpartum hemorrhage, worried it will occur again, questions care during hemorrhage episode; daughter concerned for mother's care witnessing hemorrhage</p> <p><i>Fidelity:</i> UK site: Standardized Patient with Mama Natalie ®</p> <p>US Site: High-fidelity: Gaumard Victoria ®</p>
Total Sample Size	N = 210 Participants (N = 165 scored participants)			

Figure 1.

Modified VGFCR

Family-focused Care Constructs	Met 3 points	Needs Improvement 2 points	Not Met Characteristics 1 point	Evaluator Notes
Family Communication				
Communication Style	Communication was fluid, therapeutic, open ended; attentive listening skills were used	Communication lacks fluidity, was open ended; distracted in listening skills; communication was rushed	Communication was directive (one-way); advice giving type of communication; listening was not used	
Use of Terminology	Discussion and terminology used were appropriate for client/family understanding. Used a follow-up question to verify family understanding. (Ex: "Do you have any questions about the terminology that was used?")	Communication occasionally used inappropriate medical terminology. If medical terminology was used, it was followed by an ambiguous explanation that was unclear for family understanding. No follow-up question was used.	Communication used medical jargon and inappropriate terminology. Medical terminology was used with no explanation for family understanding. No follow-up question was used.	
Positioning	Position was appropriate with full engagement; positioned at eye level during interviews/conversations; felt respectful toward client/family	Position was appropriate at times; <u>sometimes</u> perceived as unengaged Ex: Professional focused on technology, computer, or hand-held device	Position was inappropriate and unengaged and perceived as overpowering toward client/family	
Eye Contact	Engage in respectful, engaging client/family eye contact, while respecting cultural norms Ex: Minimally distracted with technology and acknowledging the importance to family.	Did not utilize culturally appropriate eye contact; was distracted with technical tasks Ex: Distracted with technology and acknowledging the importance to family.	Eye contact was directed away from family members Ex: Extremely distracted with technology and not acknowledging the importance to family.	

Family-focused Care Constructs	Met 3 points	Needs Improvement 2 points	Not Met Characteristics 1 point	Evaluator Notes
Delivers Compassionate Care	<p>Made a positive impression on family through engagement such as offering:</p> <ul style="list-style-type: none"> • Support • Hope • Empathy <p>Ex: "What gives your family hope?" "How may I best support your family through this difficult time?"</p> <p>Expressed empathy for family struggles, distress, & suffering; reflect on family conversation</p>	<p>Made an indifferent/ambiguous impression toward the family. Lacked family engagement, may have mixed emotions of perceived support, hope, and empathy</p> <p>Ex: Inaccurate assumptions about the family</p>	<p>Made a negative impression on family; no family engagement; did not offer support, hope, and empathy</p> <p>Hostility and overtones of power; emotional stance (anger, aloof, distracted, irritated, prejudice)</p>	
Summary & Validation	<p>Verbally reflected back to the client/family about their conversation and validates summary with client/family</p> <p>(Ex: Communicated understanding of family needs, values, or beliefs "Did I understand your needs correctly?")</p>	<p>Communicated with a verbal reflection on that was inaccurate of the conversation with the client/family</p> <p>Able to clarify summary by verifying needs with family. "My apologies, now I correctly understand your family's needs."</p>	<p>Did not verbally reflect back and did not verify with client/family about their conversation</p>	
<p>Score how many times each column was selected within the Family Communication Columns, then multiply the sum by the number indicated in each column. Next, add together the three column totals to determine the final score.</p>	<p>Column Sum:</p> <p>X3 =</p>	<p>Column Sum:</p> <p>X2 =</p>	<p>Column Sum:</p> <p>X1 =</p>	<p>Total Family Communication Score</p>

Family as Client

Family-focused Care Constructs	Met 3 points	Needs Improvement 2 points	Not Met Characteristics 1 point	Evaluator Notes
Family History and Data Collection Method	<p>Identified family: household, health, support, and community resources.</p> <p>Ex: Genogram, ecomap, circular conversation, attachment diagram -Utilized 2 or more tools</p>	<p>Initiated, but did not complete a conversation about family household, health, support, and community resources.</p> <p>Family may have felt rushed. -Utilized one tool</p>	<p>Did not identify family: household, health, support, and community resources.</p> <p>-Utilized zero tools</p>	
Family Health Routines are Assessed	<p>Initiates conversation on 3 or more of these areas</p> <ul style="list-style-type: none"> • Routines • Behaviors • Values • Relationships • How crises and information affect the family • Celebrations • Traditions • Spirituality <p>Ex: Assessed child's bedtime/nap routine and accommodated care around child's normal schedule. "How does your family celebrate traditions and food preferences?" "How has this new health information affected your family?"</p>	<p>Initiates conversation on 1 or 2 of these areas:</p> <ul style="list-style-type: none"> • Routines • Behaviors • Values • Relationships • How crises and information affect the family • Celebrations • Traditions • Spirituality 	<p>Does not inquire about family health routines</p> <p>Zero areas were addressed</p>	

Family-focused Care Constructs	Met 3 points	Needs Improvement 2 points	Not Met Characteristics 1 point	Evaluator Notes
Addressing Family Needs	<p>Inquired about client/family needs by addressing 3 or more priority areas:</p> <ul style="list-style-type: none"> • Family strengths • Issues • Concerns • Stressors • Resources • Support • Teaching <p>Ex: “What is a goal you have for today?” “How may I help you?” “What needs does your family have at this time?” Explores family needs through dialog until deep understanding is reached.</p>	<p>Incomplete/inconsistent inquiry about client/family needs; however, will respond to needs self-identified by client/family members or addressed 1 or 2 of these client/family needs:</p> <ul style="list-style-type: none"> • Family strengths • Issues • Concerns • Stressors • Resources • Support • Teaching <p>Ex: Within a conversation, the family self identifies needs, the professional addresses the concerns and further explores the need with the family.</p>	<p>Did not inquire about client/family needs.</p> <p>Zero areas were addressed.</p> <p>Ex: Within a conversation, the family self identifies needs, yet the professional does nothing about it or addresses the concerns.</p>	
Addressing Involvement: Partnering with family	<p>Addressed family in how much involvement they want healthcare professional to aide with decision making processes.</p> <p>If family desires: Coaching, partnering, advising, shared decision-making is offered.</p> <p>Ex: “What can I do for your family?”</p>	<p>Identified options of healthcare professional involvement, but did not clarify or specify client/family needs/desires of involvement.</p>	<p>Did not inquire about family desires for health care professional involvement with healthcare decision making processes.</p>	

Family-focused Care Constructs	Met 3 points	Needs Improvement 2 points	Not Met Characteristics 1 point	Evaluator Notes
Family as Client	<p>Care focuses on assessment of the family unit and individual members: recognizing their routines and strengths. Client/family members are validated.</p> <p>Ex: Explains rationale for conducting a holistic family assessment to the client/family; this will enhance the family's cooperation during the assessment</p>	<p>Care focuses on the assessment of the client. Family members are asked questions, but not assessed or included as part of care and assessment.</p>	<p>Care focuses on individual client. Family is not included as part of the assessment. The family members are not validated.</p>	
Addressing Needs for Follow-up Care	<p>Identified needs/family preference for follow-up care; provided possible resources and coordinated referrals across disciplines.</p> <p>Ex: support groups, discharge services, referrals, and involvement of interdisciplinary team: Social worker, physician, clergy, public health nurse, hospice care</p>	<p>Mentioned follow-up care, but was ambiguous about information and did not tailor it to the family's needs.</p> <p>Ex: "The doctor will be in shortly."</p> <p>Ex: Assessed the family needs at home but then does not follow through on coordinating home medical equipment</p>	<p>Did not discuss needs for follow-up care.</p>	
<p>Score how many times each column was selected with the Family as Client Care Column, then multiply the sum by the number indicated in each column. Next, add together the three column totals to determine the score.</p>	<p>Column Sum:</p> <p>X3 =</p>	<p>Column Sum:</p> <p>X2 =</p>	<p>Column Sum:</p> <p>X1 =</p>	<p>Family as Client Care Total Score</p>

Data Analysis.

All data was compiled and 100% of the data points were verified for accuracy on an Excel spreadsheet. An instrument specialist and a statistician conducted data analysis, using Stata 14.1 (StataCorp, College Station, TX). Categorical variables were expressed as frequencies and percentages and continuous variables as mean \pm SD. Continuous variables were assessed using Student's t-test for group differences. Categorical data were compared using chi-square or Fisher exact tests, where appropriate. Internal consistency and inter-rater reliability were also evaluated. Internal consistency was assessed using the Cronbach α coefficient, where commonly accepted rules indicate values from 0.70 – 0.79 are considered acceptable, 0.80 – 0.89 are good, and ≥ 0.90 are excellent (DeVellis, 2012; Kline, 2000). The inter-rater reliability was assessed using Fleiss' Kappa, a statistical measure for assessing the reliability of agreement between multiple raters. To account for the ordinal nature of the scores for each construct, an ordinal weighting matrix was used. A value of $P < 0.05$ a priori was considered statistically significant and P values were 2 sided.

Results

Through Stata 14.1 software, Fleiss' Kappa for inter-rater reliability, Cronbach's alpha and level of significance were determined. The results are shown in Table 2.

Internal Consistency

Cronbach's α was used to assess the internal consistency for researchers and participants for of all items of the rubric and of each construct separately, which included: The Cronbach's α for researchers showed good overall reliability for all items with a value of 0.845 and the α of each construct ranged from 0.822 to 0.847 (Table 3). Similarly, the Cronbach's α for participants

showed good overall reliability for all items with a value of 0.839 and the α of each construct ranged from 0.818 to 0.836. The internal consistency of the 12-item family constructs was determined reliable with an overall Cronbach's $\alpha = 0.842$ (researcher and participants' combined scores).

Inter-rater reliability

The Kappa statistical test was used to determine the reliability of the VGFCR, as the ratings given by the researchers and participants were ordinal values (McHugh, 2012). Therefore, the inter-rater reliability was found by calculating the Fleiss' Kappa for more than two raters, an extension of Cohen's Kappa. The results were concluded based on accepted interpretations of the Kappa statistic (Landis & Koch, 1977). Kappa values were assessed for both researchers and participants. For researchers, inter-rater reliability within the 12 constructs was found to be poor ($\kappa < 0.20$) in 3 constructs, fair ($0.20 \leq \kappa < 0.40$) in 6 constructs, and moderate ($0.40 \leq \kappa < 0.60$) in the remaining 3 constructs. For participants, inter-rater reliability was found to be poor ($\kappa < 0.20$) in 3 constructs, fair ($0.20 \leq \kappa < 0.40$) in 8 constructs, and moderate ($0.40 \leq \kappa < 0.60$) in the remaining construct. Eleven constructs showed significance at the $p = .05$ level. The construct 'Summary & Validation' did not show significance within the participant peer-reviewers, but did show significance at the $p = 0.5$ level between the researchers.

Table 2

Inter-rater Reliability of VGFCR

Construct	Researchers' Cronbach's Alpha	Participants' Cronbach's Alpha	Researchers Agreement Using Fleiss' Kappa* Fleiss Kappa (95% CI)	P-Value	Participants Agreement Using Fleiss' Kappa* Fleiss Kappa (95% CI)	P-Value
Communication Style	0.8255	0.8322	0.514 (0.381, 0.647)	<0.001	0.254 (0.123, 0.385)	<0.001
Use of Terminology	0.8468	0.835	0.192 (0.098, 0.287)	<0.001	0.087 (-0.061, 0.235)	<0.001
Positioning	0.8334	0.8356	0.356 (0.246, 0.466)	<0.001	0.191 (0.066, 0.317)	0.003
Eye Contact	0.833	0.8346	0.405 (0.293, 0.518)	<0.001	0.261 (0.129, 0.394)	<0.001
Delivers Compassionate Care	0.8222	0.8326	0.502 (0.386, 0.617)	<0.001	0.200 (0.071, 0.330)	0.003
Summary & Validation	0.8284	0.8246	0.263 (0.167, 0.360)	<0.001	0.104 (-0.025, 0.232)	0.11
Family History & Data Collection Method	0.8403	0.8258	0.293 (0.193, 0.394)	<0.001	0.276 (0.157, 0.394)	<0.001
Family Health Routines are Assessed	0.8288	0.818	0.146 (0.044, 0.248)	<0.001	0.241 (0.109, 0.372)	<0.001

Addressing Family Needs	0.8251	0.8191	0.278 (0.178, 0.378)	<0.001	0.255 (0.131, 0.380)	<0.001
Addressing Involvement: Partnering with Family	0.8417	0.8211	-0.071 (-0.130, -0.012)	0.018	0.309 (0.195, 0.423)	<0.001
Family as Client	0.8274	0.8189	0.269 (0.177, 0.361)	<0.001	0.401 (0.291, 0.512)	<0.001
Addressing Needs for Follow-up Care	0.8431	0.8235	0.438 (0.229, 0.648)	<0.001	0.285 (0.164, 0.405)	<0.001
Test scale	0.845	0.8391				

* Ordinal weights used to account for the ranking scale

Hypotheses Data Analysis.

Table 3 demonstrates that pediatric sites scored higher average VGFCR scores than obstetric sites overall and separately for researcher and participant raters. This indicates hypothesis one was supported and that more family care was provided during pediatric simulations than the obstetric simulations. Similarly, there was no difference in the overall VGFCR average scores between researchers and participants. This supports the second hypothesis and demonstrates consistency in scoring across different users.

Table 3

Pediatric vs. Obstetrical Participants' Overall Average VGFCR Scores

Testing Hypothesis #1	All Members (n=329)	Pediatric Sites (n=151)	Obstetrical Sites (n=178)	P-Value
Researchers	25.8 ± 3.2	26.5 ± 3.0	25.3 ± 3.4	0.020
Participants	25.8 ± 4.1	28.0 ± 3.8	23.9 ± 3.2	<0.001
Total Score	25.8 ± 3.6	27.3 ± 3.5	24.6 ± 3.4	<0.001
Testing Hypothesis #2		Researcher Scores	Participant Scores	P-Value
Sample A- PEDs UK Students		25.4 ± 4.1	28.1 ± 4.6	0.043
Sample B- PEDs US Midwest Students		27.2 ± 2.1	28.6 ± 3.5	0.061
Sample C- PEDs US Eastern Staff Nurses		26.6 ± 2.3	27.2 ± 3.3	0.52
Sample D- Midwifery UK Students		24 ± 3.3	25.5 ± 2.2	0.19
Sample E- OB US Midwest Students		24.8 ± 3.2	23.8 ± 2.9	0.19
Sample F- OB US Midwest Staff Nurses		25.9 ± 3.4	23.6 ± 3.6	0.002
Total Score				0.99

* Ordinal weights used to account for the ranking scale

The VGFCR indicates high value in serving as both an educator led-tool and may be used consistently by peers to aide students and staff in developing essential family care and communication skills. The consistency in overall scores from both an educator and peer-review perspective supports the reliability of the rubric.

Discussion

Overall, the rubric was found to be a reliable and valid tool to assist nursing staff and students in identification of needed family-focused care actions and communication skills that may be applied to their future practice. This consistency is valuable for utilization during debrief following simulation by helping participants raise awareness of their strengths and areas for improvement through formative feedback. The VGFCR has been tested internationally, utilized within several different settings, varying simulation fidelities and modalities as well as utilized for peer-review.

In 2013 Adamson, Kardong-Edgren & Wilhaus updated their review of simulation instruments; no rubrics were found to encompass the importance of family communication and care skills. The VGFCR facilitates consistent and constructive feedback following simulation scenarios. There were no differences found between researcher and participants' overall scoring while utilizing the VGFCR, indicating this tool may be used for formative feedback from both educators and peer-review perspectives.

By allowing nurses more time at the bedside in less emergent care simulations, more family care was provided. Thus, the nurses were more likely to include family in care situations dependent on the nurses perceived physiologic needs of the patient. This supports that nurses need workload assignments that provide time to engage in meaningful care (Hegney et al., 2019). Also, in emergent situations, teams should assign an individual to attend to the family as the primary (assigned) nurse shifts attention to the needs of the patient (Compton et al., 2011). The VGFCR enhances skill development and broadens the focus of simulation from psychomotor skills to address family communication and care skills. .

Continual refinement of the rubric constructs is needed to increase inter-rater reliability with constructs that fall below Kappa of 0.20 or lower (three constructs- 'Use of Terminology, 'Family Health Routines are Assesses' and 'Addressing Involvement: Partnering with Family'). A factor that may have lowered inter-rater reliability were that obstetrical simulation scenarios were acute, high-intensity, emergent situations that may have given the participants less time to attend to the family's needs. This may have skewed raters' scoring given the intensity of the situation. It is important for the educators utilizing the rubric to discuss behaviors that constitute scoring of each construct beforehand.

As an example, the 'Use of Terminology' construct had ambiguity of what should be classified as medical terminology. Common words scored as a '2' on the rubric for 'Use of Terminology' during the obstetrical simulations included: 'vitals' for physiological observations and to add to the complexity, the UK nurses call them 'obs' for observations. International differences were noted. For example UK nurses used the term 'A & E' for accident and emergency. In contrast, US nurses referred to 'ER' for Emergency Room. UK nurses would refer to the 'theatre', whereas US nurses would call it the 'OR' for operating room. It is recommended that when scoring the 'Use of Terminology' construct, the video may need to be watched twice so that researchers are only scoring for the terminology construct to help with consistency.

A strength of the study is that it demonstrates the rubric may be utilized in emergent situations and those of less acuity. Educators may develop scenarios to apply the rubric in order to assess different family and communication behaviors. No single scenario could address all 12 VGFCR constructs, however by using three different scenarios for each group, these behaviors could be demonstrated. It is advised that educators should agree which of the constructs are

applicable for each simulation scenario. The ‘family communication’ constructs will be embedded in each encounter, but the ‘family as client’ constructs will be selected depending upon the learning outcomes. For example, during admissions or clinic visits the ‘Family History and Data Collection Method’ construct is measured, whereas when a patient/family is being discharged, ‘Addressing Needs for Follow-up Care’ construct is measured. This will help focus the learner during their simulation experience. Educators are encouraged to build family care and communication skills over a series of planned simulations.

Limitations

The international sample was limited to English speaking countries with a strong emphasis on Western medicine practices. Use in other international health care environments with different practice models has not been established.

As discussed, differences in terminology may have been a limitation in using the ‘Use of terminology’ construct of the rubric. The international researcher scoring the participants was not aware of ‘common language’ expressed by the participants from that particular region.

Implications

This rubric provides nursing educators, staff and students with a guide to assist in important family-focused care and communication skills. The rubric helps guide important family-focused nursing actions supportive of family members. The rubric helps identify strengths and areas for improvement and aide in family nursing knowledge. The VGFCR continues to have potential to enhance confidence in educators who may not have family nursing expertise and serve as a guide for simulation debriefing.

Further Research

Further data analysis and rubric development needs to be explored with different international populations and utilization for peer-review. Continual refinement of the rubric constructs is needed to increase inter-rater reliability with constructs that fall below Kappa of 0.20 or lower.

There is the potential to utilize and test the validity and reliability of the VGFCR during care situations in the practice setting. Family communication and care education could occur during simulation and then be measured with the same nurses within their practice setting to see if skills learned in the simulation setting are transferable to practice.

Conclusions

The rubric provided a framework to engage nursing staff and students in development of family care and communication skills. The VGFCR continues to provide educators with a teaching guide to aide in development of family-focused care actions critical to the advancement of family practice. This rubric is a valuable asset when used from a peer-review perspective helping students and staff to comprehend important skills to aide and support families while also contributing towards their own learning.

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References

- Adamson, K. A., Kardong-Edgren, S. & Willhaus, J. (2013). An updated review of published simulation evaluation instrument. *Clinical Simulation in Nursing*, 9, e393-400.
- Chesla, C.A. (2010). Do family interventions improve health? *Journal of Family Nursing*, 16(4), 355-377. doi: 10.1177/1074840710383145
- Christian, B. J. (2018). Translational research – The linkage between family-centered care and improved health outcomes for children and their families. *Journal of Pediatric Nursing*, 43, 127–131. doi: 10.1016/j.pedn.2018.10.010
- Coe, N. B., Guo, J., Konetzka, R. T., & Van Houtven, C. H. (2019). What is the marginal benefit of payment-induced family care? Impact on Medicaid spending and health of care recipients. *Health Economics*, 28(5), 678–692. doi: 10.1002/hec.3873
- Compton, S., Levy, P., Griffin, M., Waselewsky, D., Mango, L., & Zalenski, R. (2011). Family-witnessed resuscitation: Bereavement outcomes in an urban environment. *Journal of Palliative Medicine*, 14(6), 715–721. doi: 10.1089/jpm.2010.0463
- Denham, S. A. (2016). Moving to family-focused care. In Denham, S. A., Eggenberger, P., Young, P., & Krumwiede, N. (Eds.), *Family-focused nursing care*. Philadelphia, PA:

F.A. Davis. (p. 116).

DeVellis, R.F. (2012). *Scale development: Theory and applications*. Los Angeles, CA: SAGE.

DeVita, M.A. (2009). Society for Simulation in Healthcare Presidential Address. *Simulation in Healthcare*, 4(1), 43-48. doi:10.1097/SIH.0b013e318197d315.

Duhamel, F. (2017). Translating knowledge from a family systems approach to clinical practice: Insights from knowledge translation research experiences. *Journal of Family Nursing*, 23(4) 461– 487. doi: 10.1177/1074840717739030

Elias, B., Barginere, M., Berry, P.A., & Selleck, C.S. (2015). Implementation of an electronic health record system within an interprofessional model of care, *Journal of Interprofessional Care*, 29(6), 551-554. doi: 10.3109/13561820.2015.1021001

George, K. L. (2018). Interprofessional simulations promote knowledge retention and enhance perceptions of teamwork skills in a surgical-trauma-burn intensive care unit setting. *Dimensions of Critical Care Nursing*, 37(3), 144–155. doi: 10.1097/DCC.0000000000000301

Hayden, J.K., Smiley, R.A., Alexander, M., Kardong-Edgren, S., & Jeffries, P.R. (2014). The NCSBN national simulation study: A longitudinal, randomized, controlled study, replacing clinical hours with simulation in prelicensure nursing education. *Journal of*

Nursing Education, 5(2), S3-S64.

Hegney, D. G., Rees, C. S., Osseiran, M. R., Breen, L., Eley, R., Windsor, C., & Harvey, C.

(2019). Perceptions of nursing workloads and contributing factors, and their impact on implicit care rationing: A Queensland, Australia study. *Journal of Nursing Management* (John Wiley & Sons, Inc.), 27(2), 371–380. doi: 10.1111/jonm.12693

Kardong-Edgren, S., Adamson, K. A. & Fitzgerald, C. (2010). A review of currently published evaluation instruments for human patient simulation. *Clinical Simulation in Nursing*, 6, e25-35. doi: 10.1016/j.ecns.2009.08.004

Kline, P. (2000). *The handbook of psychological testing* (2nd ed.). London: Routledge.

Landis, J.R. & Koch, G.G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 33(1), 159-174.

Lynn, M. (1986). Determination and quantification of content validity. *Nursing Research* 35(6), 382-385.

Mann, D. (2016). Design, implementation, and early outcome indicators of a new family-integrated neonatal unit. *Nursing for Women's Health*, 20(2), 158–166. doi: 10.1016/j.nwh.2016.01.007

Masberg, M., Swan, M., Van Gelderen, S., & Frederick, J. (2018). *Perceived Learning Using*

iPads for Simulation Observation, Poster presentation presented at the conference of

Nursing Science & Practice, London, United Kingdom.

McHugh, M.L. (2012). Interrater reliability: The Kappa statistic. *Biochem Med (Zagreb)*,

22(3), 276-282.

Ngui, E. M. & Flores, G. (2006). Satisfaction with care and ease of using healthcare services

among parents of children with special healthcare needs: The roles of race/ethnicity,

insurance, language, and adequacy of family-centered care. *Pediatrics*, 117(4), 1184-

1196. doi: 10.1542/peds.2005-1088

Nursing & Midwifery Council. (2018, May 17). Standards for pre-registration nursing

programmes. Retrieved May 10, 2019, from

<https://www.nmc.org.uk/standards/standards-for-nurses/standards-for-pre-registration-nursing-programmes/>

Nursing and Midwifery Council. (2007). Supporting direct care through simulated practice

learning in the pre-registration nursing programme. London, NMC.

Swan, M. A., & Hobbs, B. B. (2018, November 30). Querying rural content experts using an

online questionnaire. *Online Journal of Rural Nursing and Health Care*, 18(2). doi:

10.14574/ojrnhc.v18i2.533

Van Gelderen, S. & Krumwiede, N. (2017, June). *Family Care Rubric Measures Essential*

Family Nursing Actions During Simulation. Podium session presented at the conference of the International Family Nursing Association, Pamplona, Spain.

Van Gelderen, S., Krumwiede, N., & Christian, A. (2016). Teaching family nursing through simulation: Family-care rubric development, *Clinical Simulation in Nursing*, 5(12), 159-170. doi: 10.1016/j.ecns.2016.01.002.