A Family-Care Rubric: Developing Family-Care and Communication Skills using Simulation

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1   Family-focused care and communication is recognized as best practice when caring for

2   patients and families (Authors, 2016) and has been suggested to improve healthcare outcomes

3   (Christian, 2018; Mann, 2016; & Chesla, 2010); reduce healthcare costs (Coe, Guo, Konetzka, &

4   Van Houtven, 2019); and improve health-related quality of life (Kuo et al., 2012; Lämås, Sundin,

5   Jacobsson, Saveman, & Östlund, 2016). A critical component of skill development is consistent

6   educator feedback to develop family-focused nursing practice, however, there is a lack of

7   evidence-based tools that frame feedback and evaluate nursing actions (Authors et al., 2016). To

8   address this gap, the Authors Family-care Rubric (FCR) was developed to enhance learning

9   experiences and development of family-care and communication skills. In 2016, it was tested

10   with Baccalaureate nursing students during their simulation learning experiences (Authors et al.).

11   The use of the family-care rubric provides an opportunity to bridge the gap between the science

12   of family nursing and clinical practice. In addition, it allows educators to evaluate learners'

13   performance and competency and provide consistent feedback.

14   The 2016 FCR was originally developed from an extensive literature review and

15   evaluated by a team of content experts to provide evaluation within two domains: family

16   communication and family as client. Within each domain, multiple family constructs can be

17   evaluated and serve as prompts for feedback. The FCR (Authors et al., 2016) has been tested

18   and validated with student nurses and found to be a valuable tool. The importance of family-

19   focused care warranted further research to extend validation to other professional groups. This

20   paper presents a multi-site study to validate the modified FCR and test transferability to different

21   populations, namely undergraduate child-nurse and midwifery students, in the United Kingdom

22   (UK); undergraduate obstetric and pediatric students and nursing staff specializing in obstetrics

23   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 nursing curricula (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

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

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46   both obstetrical and pediatric simulations giving a total of (N = 210). Between the six cohorts,

47   88 videos were recorded and 86 were scored, two videos were discarded due to poor quality

48   (Table 1).

<div align="center">**Method**</div>

50   For the purposes of this study, researchers retested a modified FCR with an international

51   sample including practicing obstetrical and pediatric nurses and pediatric, obstetrical, and

52   midwifery students. Two hypothesis were developed for this study.

53   *Hypotheses:*

54   *1.*   There will be greater overall average FCR scores for participants involved in

55   pediatric simulations than obstetrical simulations.

56   *2.*   There will be no difference in overall FCR average scores by researchers vs.

57   participants.

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

59   ***Phase one: Content Expert Review***

60   The original FCR (Authors et al., 2016) was reviewed for content validity. Content expert

61   review was solicited to reaffirm and ensure all "major elements relevant to the constructs are

62   being measured" (Burns & Grove, 2005, p. 377) from the 2016 study. This was an important

63   process since no other validated family-care and communication rubrics were identified in the

64   literature review. Fourteen nursing family health and simulation experts were contacted, with 6

65   experts agreeing to participate in determining content validity utilizing the Blinded method

66   (Blinded, 2018). Experts were sent a link to a Qualtrics ® survey and each expert reviewed each

67   of the original 11 constructs within the FCR (Authors et al., 2016) for the following items: (a)

68 relevancy of the statements within each individual construct for family-focused care, (b)

69 statements sufficiently describes each individual construct, (c) clarity of statements, and (d)

70 readability of statements.

71   Once the international research team was identified, to ensure transferability to the

72 international setting, the team was given the opportunity to review the rubric for face validity for

73 acceptance that the statements within the rubric appear relevant (Lynn, 1986) with applicability

74 and appropriate terminology for the UK. Following the second expert review, rubric

75 modifications were completed based upon both expert groups' recommendations, results within

76 the 2016 (Authors et al.) study and an updated literature review.

77   Rubric modifications included changing language within the 'eye contact' construct to be

78 more inclusive of cultural differences and the 'terminology' construct definition was defined

79 further with examples with intent to increase inter-rater reliability. Construct titles were

80 shortened to provide clarity and an additional construct 'Summary & Validation' was added to

81 ensure after a family conversation, the nurse verbally reflects back their desire to validate the

82 family's wishes. Additionally, a FCR manual was designed by the chief investigator (Authors)

83 to standardize use of the rubric among raters. The manual provided detailed definitions of each

84 construct along with more examples of its application. It also provided additional language on

85 the final scoring of the rubric.

86 *Phase Two: Clinical Partnerships & Simulation Scenario Development*

87   The original study findings (Authors et al., 2016) and the modified FCR *(figure 1)* were

88 presented at an international family nursing conference (Authors & Krumwiede, 2017).   This

89 presented an opportunity to develop international research collaborations. Four sites and six

90 purposive samples were identified to test the modified FCR: two UK universities, one United

91 States (US) university, an Eastern US children's hospital and a Midwestern US obstetrical

92 hospital (Table 1).

93   Six simulation scenarios (three pediatric and three obstetric/newborn) were developed by

94 the research team (Table 1). The chief investigator (CI) formed four research groups yielding six

95 additional nurse researchers with obstetrical, neonatal, pediatric, and simulation expertise to test

96 the rubric at their perspective simulation centers. The CI attended each research data collection

97 site to ensure consistency and congruence with the simulation set-up, environment, actor roles,

98 scenario progression, and data collection procedures. All standardized patients and family actors

99 were given the same training and cue cards prior to the simulation to maintain consistency

100 among all international groups.

101 *Phase three: Ethical Considerations*

102   The CI ensured that correct study procedures were followed, coordinated site participant

103 recruitment, and appropriate organizational research permissions were met at each international

104 site by the local principal investigator (PI). Participation was voluntary and participants were

105 provided study procedures in advance of the simulation. Written consent was given as approved

106 by the local ethics committees or institutional review board. Registered Nurses earned education

107 credits. No researchers had grading authority over students and simulation performances did not

108 impact students' academic grades.

109   Simulations were video recorded at each site, the PI collected the videos and stored them

110 on their local, password-protected database where only the researchers had access. The videos

111 are being stored for 1-3 years as required by each ethics committee.

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112 ***Phase four: Data Collection & Psychometric Testing***

113   Simulations at each site were facilitated by the PI and CI. The rubric was shared with

114 potential student participants two weeks prior to the date of the study, staff participants were able

115 to review the rubric the same day of utilization. Students were given the rubric in-advance to

116 lessen anxiety from their inexperience in practice. On the day of the simulations, participants

117 were guided through the use of the rubric by the CI and were asked to maintain independent

118 thinking while scoring their peers.

119   A four hour simulation session was scheduled for all participants. All were orientated to

120 the simulation environment and manikins prior to participation, if the group was unfamiliar. All

121 participants were required to work in pairs to complete one of three clinical simulations relevant

122 to their professional group. All participants actively participated in at least one scenario and

123 observed at least two others. Participants were asked to care for simulated

124 pediatric/obstetric/newborn manikins and/or actors who role-played patients (standardized

125 patients) in the simulation suite. All simulations had one to two actors who played various

126 family roles pertinent to the scenario (Simulation design, Table 1). Scenarios were developed to

127 ensure that participants had the opportunity to demonstrate the twelve family-care constructs. No

128 limitation of time was placed on participants.

129   Simulations were live-streamed to a separate room where the peer participants observed

130 simulations and independently scored the simulation participants using the rubric. Upon

131 completion of the simulations, the two participants returned to the main group and the CI led a

132 structured debriefing discussion guided by the FCR. Feedback was also obtained to clarify and

133 develop construct meaning and scoring. Additional data was collected using two approaches:

134   1.   Pre-simulation surveys: Participants completed a password protected, online Qualtrics ®

135   pre-survey, that included demographics and perceptions of the importance of family

136   communication and care skills, using provided iPads.

137   2.   Simulation experience evaluation: all participants were asked to complete an anonymous

138   simulation experience evaluation questionnaire using Qualtrics ® Survey, to explore the

139   participants' experiences of learning and facilitation of the simulations.

140   Following the simulation days, seven nurse researchers were organized into groups of

141   three and independently scored the video recordings utilizing the FCR. Researchers were able to

142   refer to the manual, as needed. In-depth discussions facilitated consistency among researcher-

143   raters. The CI scored all six purposive samples for consistency. Each researcher did not view

144   more than three videos/day to maintain rigor and clarity while utilizing the rubric. The average

145   length for each video recording was 15-20 minutes.

146   [Table 1]

147   [Figure 1]

148   ***Data Analysis.***

149   All data was compiled and 100% of the data points were verified for accuracy on an

150   Excel spreadsheet. An instrument specialist and a statistician conducted data analysis, using

151   Stata 14.1 (StataCorp, College Station, TX). Categorical variables were expressed as frequencies

152   and percentages and continuous variables as mean ± SD. Continuous variables were assessed

153   using Student's t-test for group differences. Categorical data were compared using chi-square or

154   Fisher exact tests, where appropriate. Internal consistency and inter-rater reliability were also

155   evaluated. Internal consistency was assessed using the Cronbach α coefficient, where commonly

156 accepted rules indicate values from 0.70 – 0.79 are considered acceptable, 0.80 – 0.89 are good,

157 and ≥ 0.90 are excellent (DeVellis, 2012; Kline, 2000). The inter-rater reliability was assessed

158 using Fleiss' Kappa, a statistical measure for assessing the reliability of agreement between

159 multiple raters. To account for the ordinal nature of the scores for each construct, an ordinal

160 weighting matrix was used. A value of $P < 0.05$ a priori was considered statistically significant

161 and P values were 2 sided.

162 **Results**

163 Through Stata 14.1 software, Fleiss' Kappa for inter-rater reliability, Cronbach's alpha

164 and level of significance were determined. The results are shown in Table 2.

165 ***Internal Consistency***

166 Cronbach's α was used to assess the internal consistency for researchers and participants

167 for of all items of the rubric and of each construct separately. The Cronbach's α for researchers

168 showed good overall reliability for all items with a value of 0.845 and the α of each construct

169 ranged from 0.822 to 0.847 (Table 3). Similarly, the Cronbach's α for participants showed good

170 overall reliability for all items with a value of 0.839 and the α of each construct ranged from

171 0.818 to 0.836. The internal consistency of the 12-item family constructs was determined

172 reliable with an overall Cronbach's alpha = 0.842 (researcher and participants' combined scores).

173 ***Inter-rater reliability***

174 The Kappa statistical test was used to determine the reliability of the FCR, as the ratings

175 given by the researchers and participants were ordinal values (McHugh, 2012). Therefore, the

176 inter-rater reliability was found by calculating the Fleiss' Kappa for more than two raters, an

177 extension of Cohen's Kappa. The results were concluded based on accepted interpretations of the

178 Kappa statistic (Landis & Koch, 1977). Kappa values were assessed for both researchers and

179 participants. For researchers, inter-rater reliability within the 12 constructs was found to be poor

180 ($\kappa < 0.20$) in 3 constructs, fair ($0.20 \le \kappa < 0.40$) in 6 constructs, and moderate ($0.40 \le \kappa < 0.60$)

181 in the remaining 3 constructs. For participants, inter-rater reliability was found to be poor ($\kappa <$

182 0.20) in 3 constructs, fair ($0.20 \le \kappa < 0.40$) in 8 constructs, and moderate ($0.40 \le \kappa < 0.60$) in the

183 remaining construct. Eleven constructs showed significance at the $p = .05$ level. The construct'

184 Summary & Validation' did not show significance within the participant peer-reviewers, but did

185 show significance at the $p = 0.5$ level between the researchers.

186 [Table 2]

187 ***Hypotheses Data Analysis.***

188 Table 3 demonstrates that pediatric sites scored higher average FCR scores than obstetric

189 sites overall and separately for researcher and participant raters. This indicates hypothesis one

190 was supported and that more family-care was provided during pediatric simulations than the

191 obstetric simulations. Similarly, there was no difference in the overall FCR average scores

192 between researchers and participants. This supports the second hypothesis and demonstrates

193 consistency in scoring across different users.

194 [Table 3]

195 The FCR indicates high value in serving as both an educator led-tool and may be used

196 consistently by peers to aide students and staff in developing essential family-care and

197 communication skills. The consistency in overall scores from both an educator and peer-review

198 perspective supports the reliability of the rubric.

199   Results from the simulation experience evaluations showed participants reporting overall

200 high satisfaction with their simulation experiences and use of the VGFCR.   Participants

201 reported that the VGFCR enhanced their learning about family-care and communication skills.

Discussion

203   Overall, the rubric was found to be a reliable and valid tool to assist nursing staff and

204 students in identification of needed family-focused care actions and communication skills that

205 may be applied to their future practice. This consistency is valuable for utilization during debrief

206 following simulation by helping learners raise awareness of their strengths and areas for

207 improvement through formative feedback. The rubric provides novice educators with an outline

208 of essential family-care actions and guides discussion between the learners and educators

209 regarding their own simulation performance in comparison to the rubric. The FCR has been

210 tested internationally, utilized within several different international simulation centers, varying

211 simulation fidelities and modalities as well as utilized for peer-review.

212   In 2013 Adamson, Kardong-Edgren & Wilhaus updated their review of simulation

213 instruments; no rubrics were found to encompass the importance of family communication and

214 care skills. The FCR facilitates consistent and constructive feedback following simulation

215 scenarios. There were no differences found between researcher and participants' overall scoring

216 while utilizing the FCR, indicating this tool may be used for formative feedback from both

217 educators and peer-review perspectives.

218   By allowing pediatric nurses more time at the bedside in less emergent care simulations,

219 more family-care was provided during simulations. Thus, the nurses were more likely to include

220 family in care situations dependent on the nurses perceived physiologic needs of the patient.

221 This supports that nurses need workload assignments that provide time to engage in meaningful

222 care (Hegney et al., 2019). Also, in emergent situations, teams should assign an individual to

223 attend to the family as the primary (assigned) nurse shifts attention to the needs of the patient

224 (Compton et al., 2011). The FCR enhances skill development and broadens the focus of

225 simulation from psychomotor skills to address family communication and care skills.

226 Continual refinement of the rubric constructs is needed to increase inter-rater reliability

227 with constructs that fall below Kappa of 0.20 or lower ('Use of Terminology, 'Family Health

228 Routines are Assesses' and 'Addressing Involvement: Partnering with Family'). A factor that

229 may have lowered inter-rater reliability were that obstetrical simulation scenarios were acute,

230 high-intensity, emergent situations that may have given the participants less time to attend to the

231 family's needs. This may have skewed raters' scoring given the intensity of the situation. It is

232 important for the educators utilizing the rubric to discuss behaviors that constitute scoring of

233 each construct beforehand.

234 As an example, the 'Use of Terminology' construct had ambiguity of what should be

235 classified as medical terminology. Common words scored as a '2' on the rubric for 'Use of

236 Terminology' during the obstetrical simulations included: 'vitals' for physiological observations

237 and to add to the complexity, the UK nurses call them 'obs' for observations. International

238 differences were noted. For example UK nurses used the term 'A & E' for accident and

239 emergency. In contrast, US nurses referred to 'ER' for Emergency Room. UK nurses would

240 refer to the 'theatre', whereas US nurses would call it the 'OR' for operating room. It is

241 recommended that when scoring the 'Use of Terminology' construct, the video may need to be

242 watched twice so that researchers are only scoring for the terminology construct to help with

243 consistency.

244   A strength of the study is that it demonstrates the rubric may be utilized in emergent

245   situations and those of less acuity. Educators may develop scenarios to apply the rubric in order

246   to assess different family and communication behaviors. No single scenario could address all 12

247   FCR constructs, however by using three different scenarios for each group, these behaviors could

248   be demonstrated. It is advised that educators should agree which of the constructs are applicable

249   for each simulation scenario. The 'family communication' constructs will be embedded in each

250   encounter, but the 'family as client' constructs will be selected depending upon the learning

251   outcomes. For example, during admissions or clinic visits the 'Family History and Data

252   Collection Method' construct is measured, whereas when a patient/family is being discharged,

253   'Addressing Needs for Follow-up Care' construct is measured. This will help focus the learner

254   during their simulation experience. Educators are encouraged to build family-care and

255   communication skills over a series of planned simulations.

256   **Limitations**

257   The international sample was limited to English speaking countries with a strong

258   emphasis on Western medicine practices. Use in other international health care environments

259   with different practice models has not been established.

260   As discussed, differences in terminology may have been a limitation in using the 'Use of

261   terminology' construct of the rubric. The international researcher scoring the participants was

262   not aware of 'common language' expressed by the participants from that particular region.

263   **Implications**

264   This rubric provides nursing educators, staff and students with a guide to assist in

265   important family-focused care and communication skills. The rubric helps guide important

266 family-focused nursing actions supportive of family members. The rubric helps identify strengths

267 and areas for improvement and aide in family nursing knowledge. The FCR continues to have

268 potential to enhance confidence in educators who may not have family nursing expertise and

269 serve as a guide for simulation debriefing.

Further Research

271 Further data analysis and rubric development needs to be explored with different

272 international populations and utilization for peer-review. Continual refinement of the rubric

273 constructs is needed to increase inter-rater reliability with constructs that fall below Kappa of

274 0.20 or lower.

275 There is the potential to utilize and test the validity and reliability of the FCR during care

276 situations in the practice setting. Family communication and care education could occur during

277 simulation and then be measured with the same nurses within their practice setting to see if skills

278 learned in the simulation setting are transferable to practice.

Conclusions

280 The rubric provided a framework to engage nursing staff and students in development of

281 family-care and communication skills. The FCR continues to provide educators with a teaching

282 guide to aide in development of family-focused care actions critical to the advancement of family

283 practice. This rubric is a valuable asset when used from a peer-review perspective helping

284 students and staff to comprehend important skills to aide and support families while also

285 contributing towards their own learning.

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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 *Site 1: England, United Kingdom*	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	*Scenario 1*: A 3 year old, male, with acute asthma *Family Member*: Mother (UK site) Grandmother (US sites) *Family Needs*: Concerned with child's shortness of breath and how to control it. *Fidelity:* High-fidelity: Sim Junior ® *Scenario 2*: Evolving case: Asthma controlled, family requiring discharge and medication teaching
Sample B- Undergraduate Pediatric Nursing Students *Site 2: Midwest United States*	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	*Family Member*: Mother (UK site) Grandmother (US sites) *Family Needs*: Asthma knowledge deficit requiring teaching on medications, nebulizer utilization, signs & symptoms, community resources *High-fidelity*: Sim Junior ®
Sample C- Pediatric Nursing Staff *Site 3: Eastern United States*	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	*Scenario 3*: A 13 year old, female, presents with appendicitis and Autism Spectrum Disorder; physician abrupt with family stating child is in need of immediate surgery *Family Member*: Mother (UK site) Grandmother (US sites) *Family Needs*: Reassurance from nurse that child will be alright and child's Autistic communication needs are understood; calming after physician encounter

| | | | | *Fidelity:* Standardized Patient |
| | | Mean Years Nursing Experience: 5.96 | | |

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

Sample F- Obstetrical Nursing Staff: Representing three different facility sites *Site 2: Midwest United States*	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	seizure and baby's condition during CPR; requiring reassurance from nurse that care is appropriate and patient needs are being met. *Fidelity:* UK site: Standardized Patient with Mama Natalie ® US Site: High-fidelity: Gaumard Victoria ® ***Scenario 3:*** A 32 year old G4P4, postpartum patient presenting with a postpartum hemorrhage two hours post-delivery; infant requiring care for hypothermia *Family Member(s)*: Husband & 12 year old daughter (UK site); Husband (US Site)
Total Sample Size	N = 210 Participants (N = 165 scored participants)			*Family Needs*: 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 *Fidelity:* UK site: Standardized Patient with Mama Natalie ® US Site: High-fidelity: Gaumard Victoria ®

Figure 1.

Modified FCR

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 over-powering 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	Made a positive impression on family through engagement such as offering: • Support • Hope • Empathy Ex: "What gives your family hope?" "How may I best support your family through this difficult time?" Expressed empathy for family struggles, distress, & suffering; reflect on family conversation	Made an indifferent/ambiguous impression toward the family. Lacked family engagement, may have mixed emotions of perceived support, hope, and empathy Ex: Inaccurate assumptions about the family	Made a negative impression on family; no family engagement; did not offer support, hope, and empathy Hostility and overtones of power; emotional stance (anger, aloof, distracted, irritated, prejudice)	
Summary & Validation	Verbally reflected back to the client/family about their conversation and validates summary with client/family (Ex: Communicated understanding of family needs, values, or beliefs "Did I understand your needs correctly?")	Communicated with a verbal reflection that was inaccurate of the conversation with the client/family Able to clarify summary by verifying needs with family. "My apologies, now I correctly understand your family's needs."	Did not verbally reflect back and did not verify with client/family about their conversation	
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.	**Column Sum:** **X3 =**	**Column Sum:** **X2 =**	**Column Sum:** **X1 =**	**Total Family Communication Score**

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	Identified family: household, health, support, and community resources. Ex: Genogram, ecomap, circular conversation, attachment diagram -Utilized 2 or more tools	Initiated, but did not complete a conversation about family household, health, support, and community resources. Family may have felt rushed. -Utilized one tool	Did not identify family: household, health, support, and community resources. -Utilized zero tools	
Family Health Routines are Assessed	Initiates conversation on 3 or more of these areas • Routines • Behaviors • Values • Relationships • How crises and information affect the family • Celebrations • Traditions • Spirituality 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?"	Initiates conversation on 1 or 2 of these areas: • Routines • Behaviors • Values • Relationships • How crises and information affect the family • Celebrations • Traditions • Spirituality	Does not inquire about family health routines Zero areas were addressed	

Family-focused Care Constructs	Met 3 points	Needs Improvement 2 points	Not Met Characteristics 1 point	Evaluator Notes
Addressing Family Needs	Inquired about client/family needs by addressing 3 or more priority areas: • Family strengths • Issues • Concerns • Stressors • Resources • Support • Teaching 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.	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: • Family strengths • Issues • Concerns • Stressors • Resources • Support • Teaching Ex: Within a conversation, the family self identifies needs, the professional addresses the concerns and further explores the need with the family.	Did not inquire about client/family needs. Zero areas were addressed. Ex: Within a conversation, the family self identifies needs, yet the professional does nothing about it or addresses the concerns.	
Addressing Involvement: Partnering with family	Addressed family in how much involvement they want healthcare professional to aide with decision making processes. If family desires: Coaching, partnering, advising, shared decision-making is offered. Ex: "What can I do for your family?"	Identified options of healthcare professional involvement, but did not clarify or specify client/family needs/desires of involvement.	Did not inquire about family desires for health care professional involvement with healthcare decision making processes.	

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

Table 2

Inter-rater Reliability of FCR

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

* Ordinal weights used to account for the ranking scale

Table 3

Pediatric vs. Obstetrical Participants' Overall Average FCR 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