Exploring communication behaviors: Time-series study on newly designed neonatal intensive care unit

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Background

Many neonatal intensive care units (NICUs) have been moving towards single-family room (SFRs) due to associated positive health outcomes (Harris, Shepley, White, Kolberg, & Harrell, 2006).

Decentralized nursing stations positively contribute to the patient experience (Fay, Cai, & Real, 2019)

Among the healthcare professionals who work in the SFR-designed NICUs, research has demonstrated that individuals perceive decreased teamwork and greater isolation (Fay, Real, & Haynes, 2022).

Health Care Practitioner Activity Types

REPORT: REPORTING TO TEAM UPDATE ON PATIENTS. INCLUDES VITALS, GOALS, AND CARE STATUS DURING THE SHIFT. ALSO INCLUDES SHIFT REPORTS AND BREAK REPORTS.

Charting: Care assessments, reports, charts, and reviewing and clarifying orders. Includes time needed to fax orders, find paper charts, and communications related to clarify orders and medications.

Medications: Activities related to medication preparation.

Preparing: Planning, organizing, and scheduling of patient treatments, tests, and services. This activity may include consulting with team members of other staff either face to face or by phone. This activity will include the time spent to include physically locate team members, supplies, forms, or equipment.

Rounds: Room rounds made at shift change or during the shift not part of medication or patient request.

Admissions/Discharge: New patient admission or patient discharge activities, including administrative functions and communications.

Patient care: Patient care in the patient's room or hallway in close proximity to the patient's room, such as transport.

Other: Activities not related to direct or indirect patient care, such as social exchanges or information related to personal topics.

Reference: Gurascio-Howard and Malloch (2007)

Face-to-Face Communication Topics

COLLABORATION: PLANNING AND DECISION MAKING FOR PATIENT CARE INVOLVING THE INTERACTION AND INFORMATION SHARING OF AT LEAST TWO TEAM MEMBERS.

Consult: Asking for patient information or clarification on existing orders, medications, procedures, and diagnostics.

Leadership: Decision-making exchanges that involve identifying options, balancing risks, selecting options, and/or re-evaluating options.

Patient information: Providing information to another caregiver on patient status and care progress.

Coaching: Supporting existing team members' ability to develop care, planning, and coordination skills. Communication related to training of new employees or student nurses.

Coordination: Caregiver team members identifying and preparing for direct care needs such as equipment scheduling procedures, medication, locating the correct equipment for a particular case.
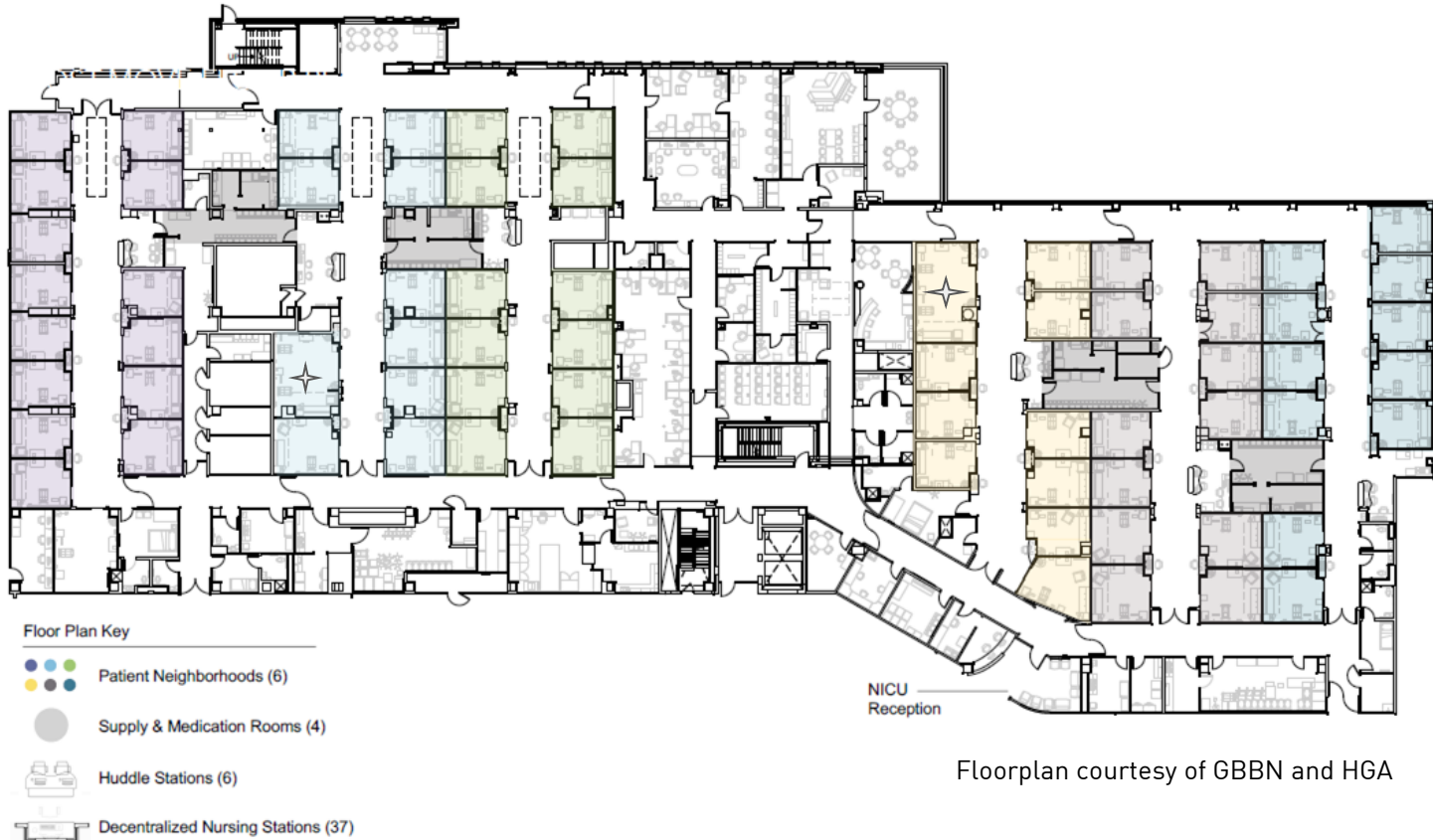
Informal Talk: Social interaction about non-work related issues or conversations such as, personal experiences and social exchanges.

Conflict: Work related conflict, such as drama, venting, and complaining

Reference: Gurascio-Howard and Malloch (2007)

Method

Floor Plan Key

Patient Neighborhoods (6)

Supply & Medication Rooms (4)

Huddle Stations (6)

Decentralized Nursing Stations (37)

NICU Reception

Floorplan courtesy of GBBN and HGA

The NICU featured six 12-bed neighborhoods with decentralized nursing stations (DNS) for close patient monitoring during charting. Each neighborhood included a huddle station in the corridor's middle and a door leading to the supply room behind it.

Donut chart — Staff Role:
- RN: 1126 (43.9%)
- RT: 510 (19.9%)
- NCT: 487 (19.0%)
- MD: 441 (17.2%)
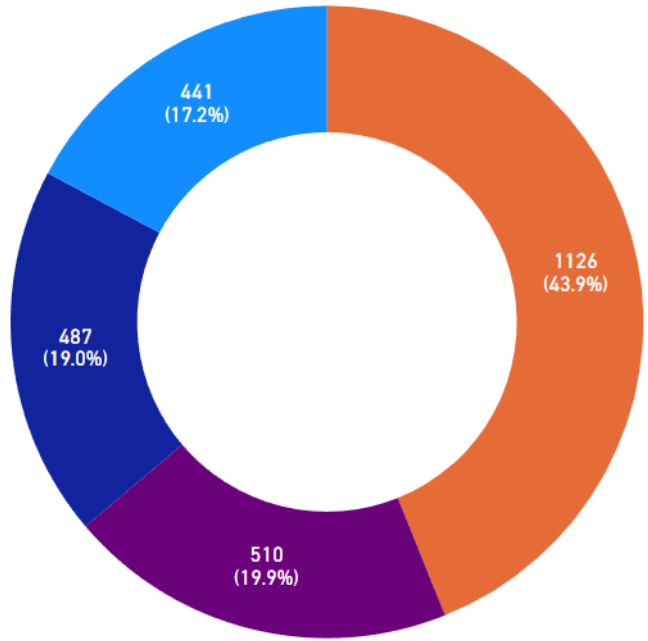
Data was collected by four observers and there were 60 unique providers observed for 90 minutes each: 29 nurses, 9 physicians, 10 respiratory therapists, and 12 NCTs resulting in 120 hours of data.

The researchers were trained to collect data using Quetech's WorkStudy+6 software.

Level 1: Location
Huddle Station, Decentralized Station, Patient Room, Supply Room, Break Room, Corridor, Workroom, Other Location, Out of Unit, Travel Time

Level 2: Activity
Report, Charting, Medications, Planning, Locating, Interacting, Rounds, Admissions/Discharge, Patient Care, Other Activity

Level 3: Communication
Communication vs. Non-Communication

Level 4: Mode & Misc.
Technology, Face to Face, Other Non-Communication Reporting, Typing/Writing, Faxing, Searching for Information, Other Non-Communication Charting, Medication Preparation, Pharmacist Search, Other Non-Communication Medications, Organizing Supplies, Scheduling, Other Non-Communication Preparing, Looking for someone, Looking for supplies/forms/equipment, Other Non-Communication Locating, Other Non-Communication Interacting, Observing, Other Non-Communication Rounds, Other Non-Communication Admissions/Discharge, Basic Infant Care, Minor Procedures, Other Non-Communication Patient Care, Personal Media Use, Bathroom, Break, Other Non-Communication Other

Level 5: Technology Type/Communication Context
Personal Device Texting, VOLT Phone Texting, Personal Device Call, VOLT Phone Call, Desktop Phone Call, Desktop Computer, Cow-Cart Computer, Tablet, Laptop, Other Technology, Collaboration, Consult, Leadership, Patient Information, Coaching, Coordination, Informal Talk, Conflict, Other FTF
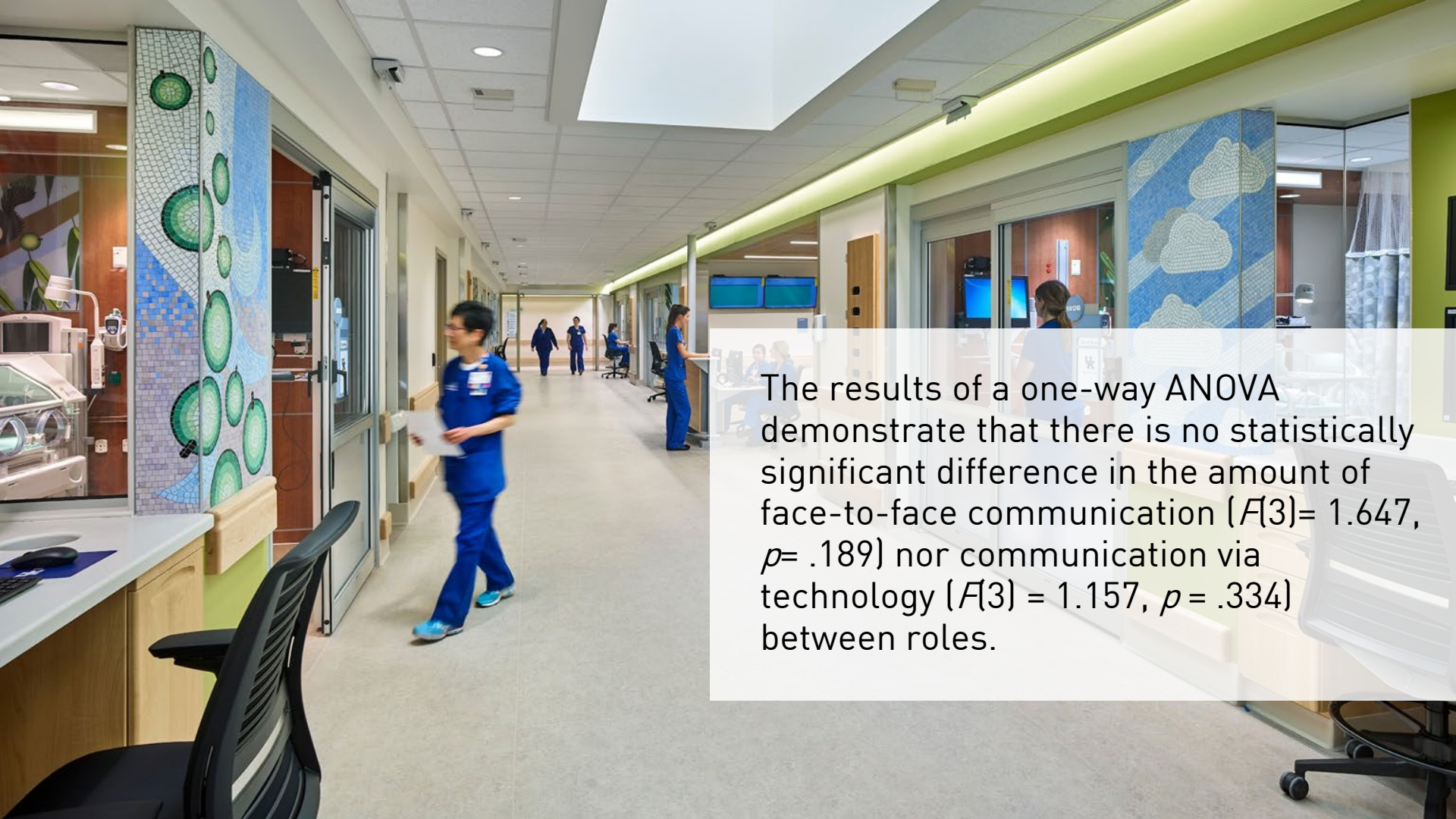
Findings

Across all healthcare providers observed, face-to-face communication occurred for an average of 31.5 out of 90 minutes (SD= 16.9).

Communication via technology occurred for an average of 7 minutes (SD= 7.98).
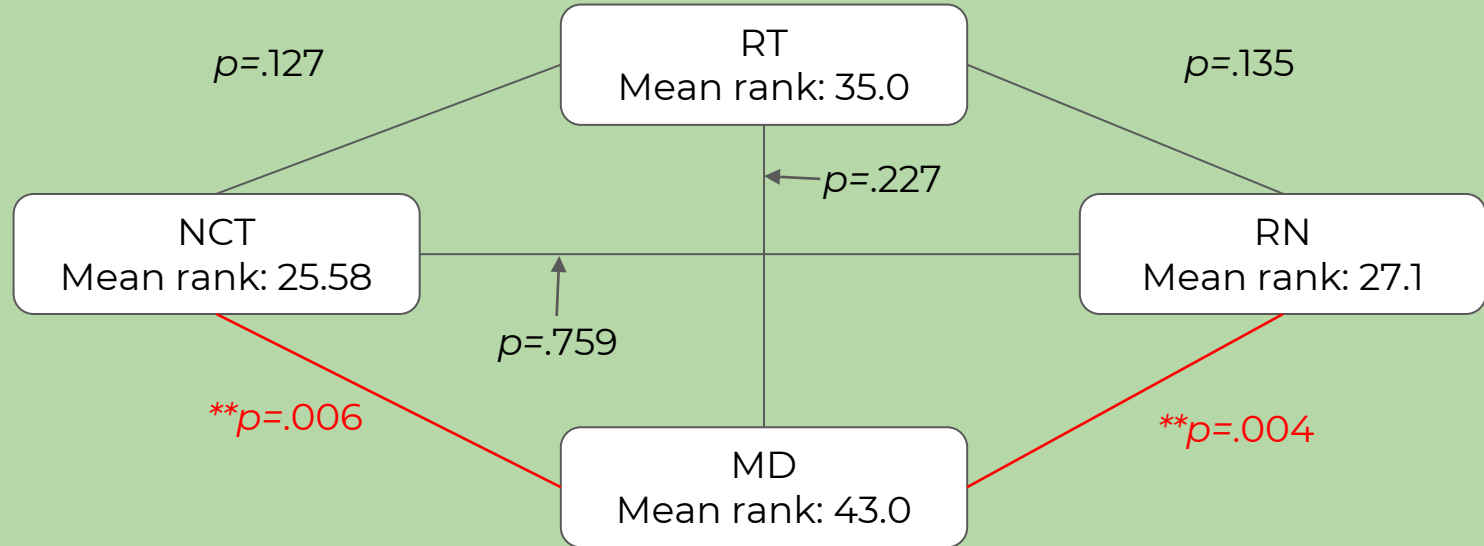
The results of a one-way ANOVA demonstrate that there is no statistically significant difference in the amount of face-to-face communication ($F(3) = 1.647$, $p = .189$) nor communication via technology ($F(3) = 1.157$, $p = .334$) between roles.

Kruskal-Wallis Test Results

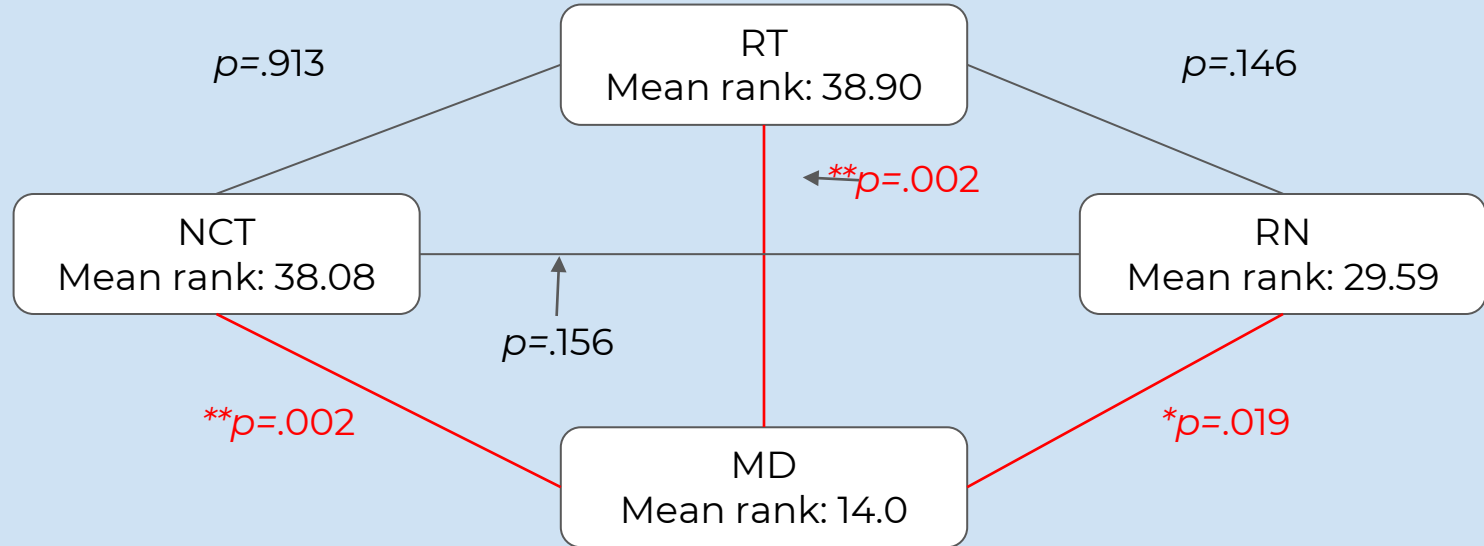| Topic	H	p-value
Coaching	7.26	.064
Collaboration	5.61	.132
Conflict	1.21	.752
Consult	7.72	.052
Coordination	10.75	.013*
Informal Talk	12.69	.005**
Leadership	2.14	.545
Patient Information	9.48	.024*
Other	5.67	.129
Note. degrees of freedom is equal to 3 for all tests *<.05, **<.01, ***<.001		

Pairwise Comparison–Coordination

RT
Mean rank: 35.0

p=.127

p=.135

NCT
Mean rank: 25.58

RN
Mean rank: 27.1

←*p*=.227

p=.759

****p*=.006*

****p*=.004*

MD
Mean rank: 43.0

Notes:
*<.05, **<.01, ***<.001

Pairwise Comparison–Informal Talk

Notes:
*<.05, **<.01, ***<.001

Pairwise Comparison–Patient Information

RT
Mean rank: 22.0

NCT
Mean rank: 23.96

RN
Mean rank: 32.02

MD
Mean rank: 43.78

p=.793

p=.118

***p*=.007

p=.179

**p*=.01

p=.077
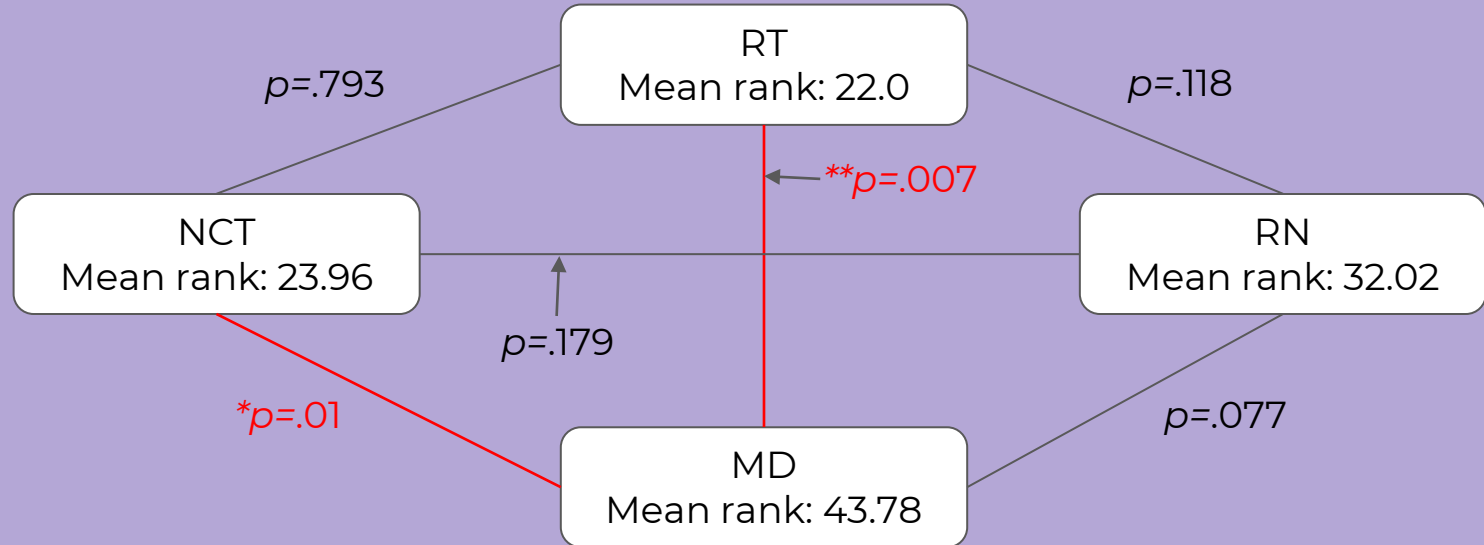
Notes:
*<.05, **<.01, ***<.001

Conclusion

The exploratory analysis reveals that face-to-face communication remains the primary mode of communication among healthcare providers.

Nurses, Respiratory Therapists, and Nursing Care Technicians spend more time engaging in informal talk.

Acknowledgements

References

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