

Article

Effective Communication of System-Level Events for Hospital System Health and Nurse Well-Being: A Qualitative Study

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Abstract: Many injuries and deaths occur yearly in the United States due to preventable errors; however, documented harm is lower in hospitals with Magnet[®] designation from the American Nurses Credentialing Center (Silver Spring, MD, USA). This manuscript illustrates insights from Magnet[®] and non-Magnet[®] nurses and nursing leaders regarding what impacts hospital system health, how those factors are communicated, and how hospital system health impacts patient safety. A qualitative descriptive approach was used with semi-structured interview questions. Within-methods data triangulation was applied to transcribed interviews using thematic analysis, application of the Goodwin statistic, and natural language processing (NLP). Thematic analysis revealed the four main themes of *Healthy Systems*, *Unhealthy Systems*, *Patient Safety*, and *Nurse Well-Being*. NLP revealed non-Magnet[®] leaders and nurses scored highest for *anxiety*, *anger*, and *sadness*, in contrast to Magnet[®] participants who had the highest levels of *positive emotion*. Key findings from the Magnet[®] participants revealed that *poaching employees* and *placing people in the wrong positions* harm hospital system health and patient safety. The use of within-methods data triangulation illuminated the contextual depth of the participants' speech, revealing the alarming emotional state that non-Magnet[®] nurses and leaders are facing. Healthcare staff's wellness must be prioritized to cultivate environments that provide safe care.

Keywords: communication; patient safety; Magnet[®]; qualitative methodology; natural language processing; hospitals; nursing leaders; nurses



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1. Introduction

Millions of deaths and injuries occur yearly in the United States (US) due to preventable errors. Equally alarming, many errors are not identifiable in electronic health records, suggesting resultant deaths and injuries may be vastly underreported [1]. Numerous mitigating interventions have been applied at the bedside, implying errors stem from nurses providing care; however, deaths and injuries have persisted [2–6]. It has been suggested that adverse events result from system-level factors (what we postulate as “system-level events”), rather than merely human error [7]. System-level factors are organizational factors that hold the potential to impact hospital staff, patients, quality of care, and the prevalence of medical errors. Such factors can include systemic changes, ineffectual communication, non-intuitive technological systems, interdisciplinary interactions, ineffective leadership approaches, or unhealthy environments or cultures [7].

Magnet[®]-designated hospitals are organizations that maintain standards from the American Nurses Credentialing Center (ANCC) (Silver Spring, MD, USA) and are noted to possess “Forces of Magnetism”, namely, qualities pertaining to transformational leadership, newly discovered knowledge, continual innovation/improvement, exemplary professional practice, and quality empirical outcomes [8]. Intriguingly, Magnet[®]-designated hospitals have been described as having better nurse communication while experiencing fewer

patient injuries and 14% lower mortality rates when compared with non-Magnet[®] counterparts [9].

Over the last decades, many linear analyses and regulatory requirements have overlooked the complexity of hospital system environments [10]. A complexity-informed systems approach is necessary for collaborative research and interventional efforts to optimize patient safety [11]. The purpose of this research was to learn Magnet[®] and non-Magnet[®] nurses' and nursing leaders' perceptions regarding system-level factors that impact hospital system health and patient safety and, subsequently, how those factors are communicated. Additionally, this manuscript will illustrate an innovative qualitative methodology and the unique positionality of Magnet[®] and non-Magnet[®] participants.

2. Materials and Methods

2.1. Design

This qualitative descriptive (QD) study was performed using semi-structured interview questions [12,13]. QD research is valuable when seeking the “how”, “what”, or “when” of phenomena or when participants' unabstracted insights are needed for interventional work [12,14,15]. Although QD research is not considered generalizable, it amplifies the unique voices of the research participants and serves as the foundation for future qualitative work [14].

2.2. Questions

The research questions for this study included:

1. How are system-level events defined by Magnet[®] and non-Magnet[®] nurses and nursing leaders?
2. What are the strengths and weaknesses of the current method of communicating system-level events?
3. What suggestions are provided to improve communication of system-level events?

2.3. Sample and Setting

Purposive sampling of nurses and nursing leaders from Magnet[®] and non-Magnet[®] designated hospitals across the US was performed. Magnet[®]-designated hospitals maintain the ANCC standards for transformational leadership, professional practice, innovations, and structural empowerment [16]. Inclusion criteria included: (1) registered nurse in the US; (2) works with medical-surgical patients or units (3) ≥ 18 years old; (4) full-time employment in current position for $\geq$ three months; and (5) English speaking. Three nurses and three nursing leaders were recruited from Magnet[®]-designated hospitals, and three nurses and three nursing leaders were recruited from non-Magnet[®] hospitals, for a total of 12 participants.

2.4. Procedures

A recruitment video was shared on LinkedIn, Twitter, and Facebook. Interested individuals messaged the principal investigator to confirm eligibility and schedule an interview over Zoom for Health. Participants reviewed an informed consent form and were assured of data deidentification and confidentiality.

2.5. Data Collection

Interviews included demographic and semi-structured questions to elicit insights regarding perceptions of factors that can compromise hospital system health and patient safety, as well as how those factors are communicated [17]. All field notes and recordings were stored in a secure, locked location. See Table 1 for a delineation of the interview questions and how they aligned with the research questions [18].

Table 1. Interview and research question alignment.

Research Questions	Semi-Structured Interview Questions
Demographics	What is your gender? What is your race and ethnicity? How long have you practiced as a nurse? What is your highest earned degree in nursing? How long have you been in leadership (if applicable)? How long have you worked in this facility? Is this a Magnet [®] or non-Magnet [®] designated facility?
How are “System-Level Events” defined?	Can you share your thoughts regarding what a healthy hospital system looks like? What characteristics do you think are unique to healthy hospital systems? How do you think these factors influence patient safety? What characteristics do you think are unique to unhealthy hospital systems? What events do you think contribute to unhealthy hospital systems? How do you think these factors influence patient safety?
What are the strengths and weaknesses of current ways of communicating System-Level Events?	If you recognized something that you felt threatened the health of a hospital system, how and to whom would you communicate? If you recognized something that you felt threatened patient safety, how and to whom would you communicate? Can you share your perceptions regarding the strengths of the communication patterns you described? Can you share any weaknesses that you perceive in the current communication methods you described?
What suggestions are provided to improve communication about System-Level Events?	What would you suggest to nursing leaders to improve communication regarding factors that threaten hospital system health? What would you suggest to nursing leaders to improve communication regarding factors that threaten patient safety? What would you suggest to staff nurses to improve communication regarding factors that threaten hospital system health? What would you suggest to staff nurses to improve communication regarding factors that threaten patient safety?

2.6. Data Analysis

Transcribed interviews were analyzed using descriptive statistics of demographics and within-methods data triangulation (WMDT) of the remaining text. WMDT involved thematic analysis (TA) to reveal what was said, application of the Goodwin statistic to reveal aggregate areas of emphasis, and natural language processing (NLP) with Linguistic Inquiry and Word Count (LIWC 2015©) to highlight the motivations, thought processes, emotions, and psychological underpinnings of the participants’ speech [19–22].

2.6.1. Thematic Analysis

TA is a qualitative method used to identify emergent themes across data [23]. TA was performed using line-by-line coding within a Microsoft Excel workbook (Microsoft Excel for Office, Redmond, WA, USA), starting with the placement of key phrases in Column A of Worksheet 1. Column B of Worksheet 1 was used to note codes that each Column A phrase represented. If a Column A phrase signified multiple codes, additional columns were used. Codes from Worksheet 1 were then copied into Column A of Worksheet 2. Researchers then identified emergent patterns, which became themes that were placed into Worksheet 3. TA was iterative until 100% agreement was reached for inter-rater reliability. See Figure 1 for an illustration of this process.

A			B		C				
1	Key Phrase (Quote)		Code		Code				
1	We are just so busy and things get missed. It's not intentional, with some of them it is, but most of the time it's not.		Being too busy leads to missed patient care						
2	In response to what characteristics of a healthy hospital are (sic) I think they listen to their employees.		Healthy hospital systems listen to employees						
3	Now, it's taken us years to evolve to that point where people feel safe talking about it. We've also done a lot of coaching with our leaders who lead these huddles on how to respond. Because sometimes, you just want to go "what happened?!" But, you know, to go "Oh, my Gosh, thank you so much for bringing that up and being honest about what's happening."		Creating an environment where people feel safe to share safety issues takes time		Leaders need coaching about how to respond to safety reporting				
4									
Data			Codes		Themes				

A		B	
1	Codes		
1	Being too busy leads to missed patient care		
2	Healthy hospital systems listen to employees		
3	Creating an environment where people feel safe to share safety issues takes time		
4	Leaders need coaching about how to respond to safety reporting		
5			
Data		Codes	Themes

A		B		C	
1	Themes →	Patient Safety		Healthy Systems	
1		Being too busy leads to missed patient care		Healthy hospital systems listen to employees	
2		Creating an environment where people feel safe to share safety issues takes time			
3		Leaders need coaching about how to respond to safety reporting			
4					
Data		Codes		Themes	

Figure 1. Manual thematic coding using Microsoft Excel Workbook (Gray = non-Magnet[®] staff, Yellow = Magnet[®] staff, Blue = Magnet[®] Leaders.

2.6.2. Goodwin Statistic

Themes, sub-themes, and codes were analyzed using the Goodwin statistic [19]. This involved dividing the number of thematic units (i.e., codes) by the sum of those units with the number of contributing participants. This process highlighted areas of aggregate emphasis [19].

2.6.3. Natural Language Processing

Transcribed interviews were analyzed with NLP using the psychometrically validated LIWC 2015© software [20,24]. While TA revealed *what* was said, NLP revealed *how* those things were spoken through assessment of word choice and frequency [24,25]. NLP provided a quantifiable delineation of the participants' underlying motivations, thought processes, and emotional and psychological states [25].

2.7. Trustworthiness

Trustworthiness, which mirrors *rigor* for quantitative research, was considered. Trustworthiness domains include *truth-value*, *applicability*, *consistency*, and *neutrality* [26]. *Truth-value* was bolstered through WMDT and inter-rater reliability, which ensured a link between participants' descriptions and research findings [27]. Rich descriptions of the research process and findings have been provided so that readers may determine *applicability* to other contexts and to support *consistency*, or the ability to replicate the processes used [28]. Finally, *neutrality* was sought through reflexivity by bringing biases to mind through journaling and peer debriefing to facilitate "bracketing" or setting them aside [23].

3. Results

3.1. Demographics

Concurrent recruitment and analysis revealed that adequate information power and thematic saturation were reached with 12 participants, aligning with the 3–16 participants often used in QD research [29,30]. The sample was 16.7% male ($n = 2$) and 83.3% female ($n = 10$). African American participants made up 16.7% of the sample ($n = 2$), 8.3% ($n = 1$) were Hispanic, and 75% were Caucasian ($n = 9$). Education ranged from associate's degrees to doctor of nursing practice degrees, with half ($n = 6$) holding a bachelor's degree. Years of nursing practice ranged from ≤ 1 to >15 years, with 50% ($n = 6$) having practiced >15 years. Fifty percent of the leaders ($n = 3$) had been in leadership for <5 years, 16.67% ($n = 1$) had been in leadership between 5 and 10 years, 16.67% ($n = 1$) had been in leadership between 10 and 15 years, and 16.67% ($n = 1$) had been in leadership >15 years.

3.2. Thematic Analysis with Goodwin Statistic

Thematic coding units that emerged from the data totaled 537, which were organized into themes and sub-themes [19]. The themes included: *Healthy Systems*, *Unhealthy Systems*, *Patient Safety*, and *Nurse Well-Being*. See Figure 2 for a depiction of themes, sub-themes, and codes.

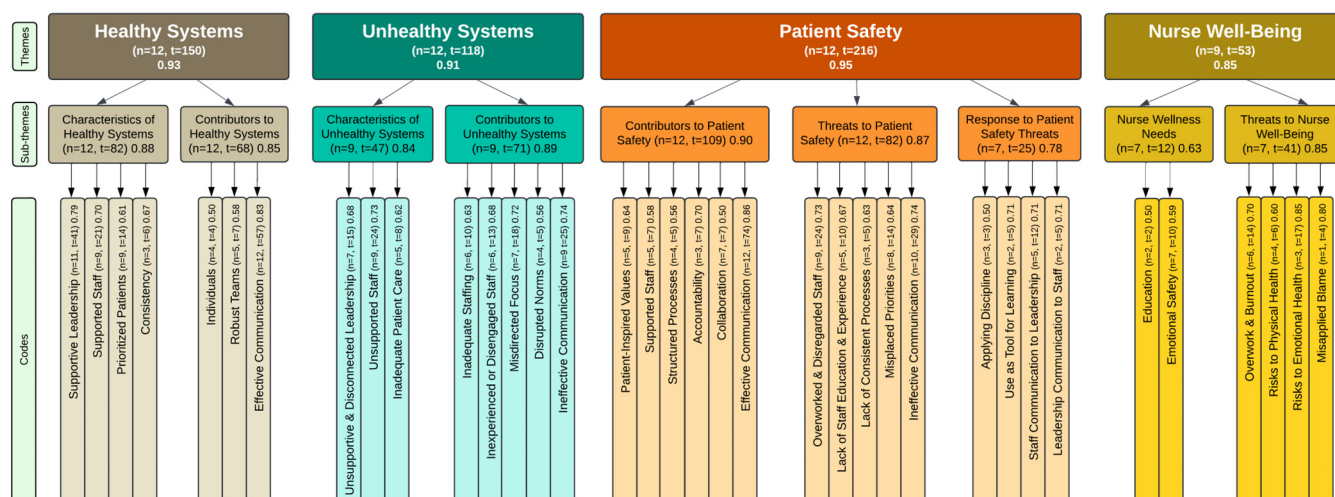


Figure 2. Themes, sub-themes, codes, and Goodwin statistics (t/(n + t)).

3.2.1. Healthy Systems

The theme of *Healthy Systems* was informed by all participant groups and had a strong emphasis, with a Goodwin statistic of 0.93. Characteristics of *Healthy Systems* included *Supportive Leadership*, *Supported Staff*, *Prioritized Patients*, and *Consistency*. Contributors to healthy systems included *Individuals*, *Robust Teams*, and *Effective Communication*.

Characteristics of Healthy Systems

Supportive Leadership was the most strongly emphasized characteristic of *Healthy Systems*, with a Goodwin statistic of 0.79. Participants described *Supportive Leadership* as those who communicate transparently and empower staff to speak up with their concerns while taking them seriously. Participants also spoke about healthy organizations' equal emphasis on the well-being of both patients and staff members.

In line with *Supportive Leadership*, participants spoke about the presence of *Supported Staff* in healthy hospital organizations. Staff participants described feeling supported when there was adequate staffing, opportunities to participate in cohesive and collaborative teams, and access to sufficient resources. One indicator of *Supported Staff* that was described was the presence of workers who are generally happy and positive. One non-Magnet® staff nurse noted, "Staff is happy in a healthy hospital system. They're not, um, upset".

All participant groups agreed that patients are *prioritized* in healthy hospital systems. There were varying opinions regarding how to facilitate this including the integration of interdisciplinary care and providing staff with the opportunity to participate in committees to help mitigate patient safety issues that arise. Participants also discussed the need to keep patients in the hospital until they are healthy enough to go home and that patient safety and wellness should be prioritized over financial gain.

Finally, participants spoke about healthy hospital systems having *Consistency*. The characteristic of consistency can manifest as a continual movement toward a shared vision and the consistent application of and adherence to procedures and protocols. Additionally, healthy hospital systems are those that share resources equally and fairly. One Magnet® nursing leader noted that healthy hospital systems "share resources throughout the system, whether that be a material resource, human resources, knowledge or information if that's something

that one site has that the other sites don't. And, really all work collectively for the good of the, for the good of the system".

Contributors to Healthy Systems

Participants noted that *Individuals*, *Robust Teams*, and *Effective Communication* are the key contributors to healthy hospital systems. Magnet[®] staff shared that every individual in a system impacts the overall health of the system. Non-Magnet[®] employees discussed the need for individuals to receive preceptorship and education and noted these are integral to hospital system health. *Robust teams* were discussed by participants who said that committees and interdisciplinary teamwork promote problem-solving and bolster system health.

Effective Communication was the most strongly emphasized contributor to hospital system health, with a Goodwin Statistic of 0.83. Magnet[®] Leaders spoke at length regarding the responsibility of leadership to communicate transparently with staff. They said it is up to leaders to cultivate an environment in which staff feel comfortable having open lines of communication with management with concerns about hospital system health. One Magnet[®] Leader shared *"I think that's important, having that culture of them being comfortable sharing what it is that needs to be said. Absolutely important"*.

3.2.2. Unhealthy Systems

The theme of *Unhealthy Systems* was informed by all participants and was strongly emphasized, with a Goodwin statistic of 0.91. Characteristics of unhealthy systems were described as *Unsupported and Disconnected Leadership*, *Unsupported Staff*, and *Inadequate Patient Care*. Contributors to unhealthy hospital systems were *Inadequate Staffing*, *Inexperienced or Disengaged Staff*, *Misdirected Focus*, *Disrupted Norms*, and *Ineffective Communication*.

Characteristics of Unhealthy Systems

It was largely the non-Magnet[®] leaders and nurses who spoke about the prevalence of *Unsupportive and Disconnected Leadership* in *Unhealthy Systems*. Some features of such leaders included a disparity between their words and actions, resistance to change, and unavailability to their staff members. Non-Magnet[®] nurses also spoke about leaders who are disconnected from what is happening on the floor, as seen by voiced perceptions that don't match what staff are experiencing at the bedside.

Participants also discussed the pervasiveness of *Unsupported Staff* in *Unhealthy Systems*, which was the most strongly emphasized characteristic, with a Goodwin statistic of 0.73. Ways in which participants felt that this manifests include poor financial compensation, fear of the ramifications of speaking up with concerns, and unrealistic care expectations with inadequate staffing. One non-Magnet[®] nurse described this, stating *"You never have time to answer call bells and then get yelled at for not answering call bells"*.

Finally, participants described unhealthy systems as those that provide *Inadequate Patient Care*. Ways in which this is seen include a lack of safety, patient education, and skilled providers. One non-Magnet[®] nurse shared *"you're also going to get a lower caliber of employee that's going to be working at those facilities, because people that are, uh, have higher, you know, good integrity and work ethic are typically not going to work in those places because it's just not worth it for them"*.

Contributors to Unhealthy Systems

Participants discussed two primary staff-related issues they felt were key contributors to *Unhealthy Systems*. Namely, the frequency of *Inadequate Staffing* and the abundance of staff who are *Inexperienced or Disengaged*. Non-Magnet[®] nurses were distressed as they discussed chronic low-staffing and a sense of hopelessness that this would continue unless legislation that mandates a change is passed. This participant group also felt that younger nurses see nursing as a job rather than a career and that a sense of organizational commitment is lacking. Non-Magnet[®] leaders noted that staff are overworked and burned

out—they felt this resulted in high turnover rates and a subsequent influx of new and inexperienced nurses.

All participant groups spoke of the probability of *Misdirected Focus* contributing to *Unhealthy Systems*. Some examples of ill-suited foci included “task over touch”, business over service, and financial gain. One non-Magnet[®] leader shared “I know that it’s more like a business now instead of, um, you know, just a service. And so, I feel like that takes away from the care of the employees. You know, we don’t get our, um—it seems like we have to worry about serving customers more than taking care of patients”.

Participants also spoke about the impact of *Disrupted Norms* on *Unhealthy Systems*, emphasizing things such as COVID-19, leadership turnover, and the loss of Magnet[®] status. One non-Magnet[®] nurse noted that their hospital was now in a mode of “putting out fires” in contrast to when they had Magnet[®]-designation and issues were addressed with root cause analyses. *Ineffective Communication* was the most strongly emphasized contributor to *Unhealthy Systems*, with a Goodwin statistic of 0.74. Participants noted that communication is ineffective when nurses do not feel heard by physicians or hospital leadership. As one non-Magnet[®] nurse shared, “I’m getting really tired of my, like, organization because nobody is listening”.

3.2.3. Patient Safety

Patient Safety was the most strongly emphasized theme, with a Goodwin statistic of 0.95. This theme was informed by all participant groups who described contributors to patient safety as *Patient-Inspired Values*, *Supported Staff*, *Structured Processes*, *Accountability*, *Collaboration*, and *Effective Communication*. Threats to patient safety that were described included *Overworked and Disregarded Staff*, *Lack of Staff Education and Experience*, *Lack of Consistent Processes*, *Misplaced Priorities*, and *Ineffective Communication*. Finally, participants described various responses to threats to patient safety, including *Applying Discipline*, *Use as a Tool for Learning*, *Staff Communication to Leadership*, and *Leadership Communication to Staff*.

Contributors to Patient Safety

Participants described *Patient-Inspired Values* as a valuable contributor to *Patient Safety*. Both Magnet[®] and non-Magnet[®] leaders shared that when patient safety is a shared goal, patients benefit from optimized care. A Magnet[®] leader expounded on this as they noted that prioritized patient safety leads to an emphasis on empathy, integrity, and accountability. Participants also shared that *Supported Staff* are equipped to take better care of patients. Non-Magnet[®] leaders illustrated this as they talked about the importance of providing adequate staffing, education, and advocacy for staff in order to improve the provision of safe care.

Structured Processes were discussed, such as the application and enforcement of policies and standards that protect patient safety, as well as pre-established ways to address safety concerns when they arise. Non-Magnet[®] nurses spoke about the need for *Accountability* of staff and leaders as a way to improve the care of patients. One non-Magnet[®] nurse shared the opinion that, “We need to have transparency and we need to have, like, leaders that are accountable to policies and procedures and make policies and procedures and not like, have the same problems arise that will affect patient care”.

All participant groups shared the perceived impact of effective *Collaboration* on patient safety, noting that leaders can cultivate environments that perpetuate a collaborative posture. A non-Magnet[®] leader shared that a multi-disciplinary sense of collaboration and camaraderie that includes ancillary staff helps to keep patients safer. *Effective Communication*, with a Goodwin statistic of 0.86, was the most strongly emphasized contributor to patient safety. Magnet[®] leaders shared the insight that a shared goal of patient safety can help communication be more effective. Non-Magnet[®] leaders and nurses spoke about the importance of effective communication, including all involved parties, such as physicians, nurses, patients, patient families, and top hospital leadership. Magnet[®] nurses and leaders

shared at length regarding the ability of communication to be eased and augmented through electronic technology.

Threats to Patient Safety

Non-Magnet[®] leaders and nurses spoke a great deal about the impact of *Overworked and Disregarded Staff on Patient Safety*. Non-Magnet[®] leaders shared that when staff nurses feel unseen and unheard, the care they provide to patients is negatively impacted. Non-Magnet[®] nurses shared that lack of support, inadequate personal time, stress, anxiety, and unmet personal needs lead to compromised patient outcomes. They also noted that *Lack of Education and Experience* negatively impacts decision-making and risks patient harm.

Participants also noted that *Lack of Consistent Processes* can result either in heightened risk or actual harm to patient safety. A Magnet[®] leader shared that a lack of consistent processes can potentiate minor issues turning into major problems that lead to patient harm. *Misplaced Priorities* such as a primary focus on cost-cutting/financial gains, how things look on paper, or concentrating on tasks instead of patient needs can compromise patient care.

The most strongly emphasized threat to *Patient Safety* was *Ineffective Communication*, with a Goodwin statistic of 0.74. Non-Magnet[®] nurses recounted instances of working up the courage to bring up patient safety concerns that were not taken seriously or were distorted after being passed through several people. Both Magnet[®] and non-Magnet[®] nurses talked about hesitating to speak up to physicians because they often seemed to respond with anger or irritation. Magnet[®] leaders discussed the importance of hearing from staff regarding their concerns. One Magnet[®] leader said, “We never know that we need to fix it unless we know it’s broken. How do we know it’s broken? Someone has to communicate the changes that need to take place. Someone needs to communicate what’s working, what’s not working. You know? Someone needs to be able to do that. And—but I think one of the major things that I remind the staff of is that feel free—you have to feel free to be able to communicate what you see, what you see needs work on, and feel comfortable to know that there won’t be any fallbacks on - on our end. We’re not . . . gonna hold it against you, so you won’t have to worry about anybody retaliatin’ against you for reporting items that you need to report because it’s all about the patient”.

Response to Patient Safety Threats

Non-Magnet[®] nurses spoke about *Applying Discipline* and the importance of disciplinary action for nurses who missed care or provided unsafe care. Conversely, Magnet[®] leaders spoke about using threats to patient safety as a *Tool for Learning*. Along with this advice, they shared the importance of coaching leaders on tracking and trending safety event reporting data for root cause analysis and threat mitigation.

Magnet[®] leaders also discussed ways to promote or ease *Staff Communication to Leadership* regarding patient safety concerns. There was a great deal of emphasis on the importance of electronic means of reporting and housing data and the propensity of anonymous reporting to bolster concerns being shared. Regarding *Leadership Communication to Staff*, Magnet[®] leaders highlighted the importance of transparent and positive strength-based interactions when communicating about safety events.

3.2.4. Nurse Well-Being

Nurse Well-Being was a well-emphasized theme, with a Goodwin statistic of 0.85. *Nurse Wellness Needs* that were shared included *Education* and *Emotional Safety*. All participant groups, except Magnet[®] leaders, talked about the detriment of staff being *Overworked and Burned Out* and enduring exposure to *Risks to Physical Health, Emotional Health, and Misapplied Blame*.

Nurse Wellness Needs

Non-Magnet[®] leaders and staff talked about the role that providing *Education* has in reducing turnover and bolstering the well-being of nurses. All participant groups talked about the importance of *Emotional Safety*. Non-Magnet[®] nurses spoke about their need for

nurturing and happiness and the role that visible and accessible leadership has on their overall wellness. Likewise, non-Magnet[®] leaders talked about the role of leadership in creating an environment that staff feel is a safe space.

Threats to Nurse Well-Being

Being *Overworked and Burned Out* was well-emphasized, with a Goodwin statistic of 0.70. Non-Magnet[®] nurses shared how an intense workload can decrease one's overall quality of life. Both Magnet[®] and non-Magnet[®] nurses talked about the detriment of having a lack of support staff, as this has resulted in a heavier workload for them. One non-Magnet[®] nurse shared, “I just hope that those people like you who are, are going to have advanced degrees and may, may have, play a part in policy changes—I pray that you think about us nurses who are doing the hard work, that are on the floor and that are, are ready to leave because, you know, there's no work-life balance whatsoever”. *Risks to Physical Health* were largely related to COVID-19, as nurses recalled not being provided with adequate personal protective equipment, which put their own health in danger. One non-Magnet[®] leader tearfully recounted an experience from the height of COVID-19 when physicians were unwilling to round on COVID-19 patients and required the nurses to go in the COVID-19 rooms in their stead.

Risks to Emotional Health was informed entirely by non-Magnet[®] nurses and was the most strongly emphasized code with a Goodwin statistic of 0.85. This participant group shared accounts of feeling demoralized, unheard, unseen, unsafe, powerless, unhappy, dismissed, and uncared for. Non-Magnet[®] nurses also shared that they often faced the consequences of *Misapplied Blame* related to the behavior or actions of support staff, patients, and physicians.

3.3. Natural Language Processing Results

NLP was done with LIWC 2015©. The LIWC© dictionary contains 80 categories representing emotive states and processes [25]. LIWC© compares transcribed text to the internal dictionary's categories and calculates output based on word usage and percentages [31]. The dimensions used included *time orientation, emotional tone, clout, authenticity, analytical thinking, drives, affective processes, cognitive processing, and informal speech*. Refer to Table 2 for participant group comparisons with LIWC© means. LIWC© means were calculated by the software developers through analysis of 231 million words from newspaper articles, blogs, expressive writing pieces, books, and Twitter posts [32].

Table 2. LIWC© analysis of nurses and nursing leaders (figures represent percentages of total speech) [25,31,32].

LIWC Variables	Magnet [®] Staff Mean	Magnet [®] Leader Mean	Non-Magnet [®] Staff Mean	Non-Magnet [®] Leader Mean	LIWC© Mean
Informal Speech —Words or non-words used as fillers					
Fillers	1.95	0.06	2.58	2.56	0.11
Non-Fluencies	4.34	2.16	2.63	3.48	0.54
Drives —Motivations driving speech					
Risk	0.50	1.28	1.10	0.87	0.47
Reward	1.49	1.31	1.28	1.30	1.46
Power	3.00	2.91	2.79	3.32	2.35
Time Orientation —Focus on future, present, or past					
Future Focus	1.48	1.92	1.14	1.46	1.42
Present Focus	15.84	16.61	14.94	17.33	9.96
Past Focus	2.40	1.56	3.39	2.37	4.64

Table 2. Cont.

LIWC Variables	Magnet [®] Staff Mean	Magnet [®] Leader Mean	Non-Magnet [®] Staff Mean	Non-Magnet [®] Leader Mean	LIWC [©] Mean
Cognitive Processes —How information processed to understand environment					
Differentiation	4.28	4.30	4.82	3.82	2.99
Certainty	1.73	1.94	1.18	1.49	1.35
Tentativeness	3.96	3.83	3.72	3.83	2.52
Discrepancies	1.96	2.06	2.53	2.49	1.44
Causation	1.81	2.33	2.65	1.85	1.40
Insight	4.03	3.29	2.57	3.36	2.16
Affective Processes —Experience and reaction to events					
Positive Emotion	3.24	4.42	2.31	3.04	3.67
Negative Emotion	0.62	0.81	1.56	1.00	1.84
Anxiety	0.09	0.22	0.45	0.33	0.31
Anger	0.09	0.05	0.26	0.11	0.54
Sadness	0.13	0.19	0.26	0.23	0.41
Summary Language Variables —See below					
Analytic (logical thinking)	24.68	29.38	23.60	22.50	56.34
Clout (confidence)	63.53	71.94	53.00	81.04	57.95
Authenticity (honesty)	59.24	38.53	45.15	37.96	49.17
Emotional Tone (positive or negative emotive response)	74.46	86.20	39.19	64.32	54.22

3.4. Research Question Findings

3.4.1. Research Question 1

How are system-level events (SLEs; an occurrence that degrades hospital system health and patient safety) defined by Magnet[®] and non-Magnet[®] nurses and nursing leaders?

This research question was answered through the theme of *Unhealthy Systems* and the subtheme of *Contributors to Unhealthy Systems*. When asked what they perceived as detrimental to the health of hospital systems, Magnet[®] leaders described the harm that can result from poaching employees from one subsystem to another, having people working in ill-suited positions, and the presence of unhealthy competition between hospital subsystems. Magnet[®] nurses noted that systems suffer when new leaders lack transparency or when supplies for patient care are lacking. They also described the negative impact of leadership turnover and ineffective communication from siloed management. Magnet[®] leaders and nurses agreed that a lack of processes for safety issues was detrimental.

Both nurse groups and non-Magnet[®] leaders described the hazard of turnover and loss of experienced nurses, and non-Magnet[®] and Magnet[®] nurses agreed that rushed changes without consideration of employee needs can have a rippling effect felt throughout an organization. Non-Magnet[®] leaders thought that the presence of animosity between leaders, not considering the individualized needs of hospital units, and overworked and burned-out staff constituted SLEs.

3.4.2. Research Question 2

What are the strengths and weaknesses of the current method of communicating system-level events?

This research question was answered through the themes of *Healthy Systems* and *Unhealthy Systems*. Both sets of leaders agreed that transparent communication is appreciated and helps create positive peer pressure. The non-Magnet[®] leaders and Magnet[®] nurses agreed that multi-disciplinary communication promotes care continuity. Magnet[®] nurses noted that electronic messaging increases access to individuals and that neutral and non-aggressive communication is more effective. Finally, non-Magnet[®] leaders and both sets of nurses agreed on the strength of leadership visibility, approachability, and accessibility.

Regarding current communication weaknesses, both sets of leaders concurred that fearing the perceptions of others hampers communication. Non-Magnet[®] leaders felt that people not being held accountable for their actions hinders communication. Non-Magnet[®] leaders and both sets of nurses spoke of missing loops in the chain of communication. The Magnet[®] nurses shared the insight that overconfident leaders who don't listen well are seen as weak when asking questions. The non-Magnet[®] nurses often spoke of feeling unheard and devalued, which compromised communication effectiveness.

3.4.3. Research Question 3

What suggestions are provided to improve communication of system-level events?

This research question was answered through the *Healthy Systems* and *Patient Safety* themes. Non-Magnet[®] nurses and Magnet[®] leaders agreed that punitive measures should be avoided and leaders should listen and be tuned into their departments. Both sets of leaders agreed about using multiple modes of communication and that the focus should be on the patient. Both sets of leaders and Magnet[®] nurses agreed that leaders can cultivate environments that are empowering to staff. All groups agreed about involving key stakeholders and being consistent, deliberate, and clear in communication.

4. Limitations

The process of online recruitment during the COVID-19 pandemic could represent a confounding variable; however, participants said the pandemic amplified pre-existing issues. Additionally, the small sample size could be considered a limitation; however, adequate information power and thematic saturation were reached while cohering with conventional parameters used for QD research [29,30,33].

5. Discussion

WMDT illuminated the contextual depth of the data. The most strongly emphasized theme was *Patient Safety* ($t/(n + t) = 0.95$). All groups spoke of communication and workload and the negative impact that ineffective communication and heavy workloads have on system health and patient safety. When speaking about workload, non-Magnet[®] nurses and leaders spoke at length regarding the importance of adequate staffing and the impact of overburdened staff on patients. This aligns with non-Magnet[®] leaders' description of *overworked and burned-out staff* as an SLE. All participant groups spoke about learning from safety events and the need to report threats to patient safety through chains of command.

In response to Research Question #1 regarding what constitutes an SLE, participants shared: poaching employees from one subsystem to another, having people working in ill-suited positions, unhealthy competition between hospital subsystems, new leaders who lack transparency, inadequate patient care supplies, leadership turnover, ineffective communication sent from siloed management, lack of processes for safety issues, turnover and loss of experienced nurses, rushed changes without consideration of employee needs, presence of animosity between leaders, not taking into account individualized needs of hospital units, and overworked and burned out staff. These findings align with the literature that suggests that adverse events originate at the system versus individual level [34]. The description of the lack of processes for safety issues coheres with the literature that describes ineffectual bedside interventions [4–6,35–37]. Knowledge gained regarding turnover and loss of experienced nurses aligns with the literature that highlights improved patient outcomes and nurse retention in healthy organizations [38,39]. The SLE overworked and burned-out staff mirrors the research, which illustrates the relationship between overwork, burnout, and reduced nurse wellness [40]. Finally, SLEs tied to ineffective communication (new leaders who lack transparency and change that occurs without full knowledge of staff or unit needs) fit with existing data that suggest communication impacts patient care, preventable errors, and staff well-being [41–43].

The perceptions of Magnet[®] leaders regarding the SLEs of *poaching employees from one subsystem to another* and *placing people in the wrong positions* and Magnet[®] nurses' de-

scriptions of harm from having *inadequate supplies* provided new insights. NLP revealed Magnet® leaders scored the highest for future thinking, and Magnet® leaders and nurses had the highest analytical thinking, indicating they could analyze the relationship between these factors and subsequent outcomes.

In response to Research Question #2 regarding the strengths of the current communication methods of SLEs, participants stated that *transparent communication is appreciated and creates positive peer pressure; multi-disciplinary communication increases care continuity; leadership visibility, approachability, and accessibility; it is neutral and not aggressive; and electronic messaging increases access of the recipient*. The strength of *transparent communication* fits with the literature that describes the importance of open communication for patient safety [41,44]. The value of *leadership visibility, approachability, and accessibility* aligns with the authors' previous concept analysis work [45]. The Magnet® nurses' view of communication that is *neutral and not aggressive* and the ease of *electronic messaging increasing access* provided new insights. NLP revealed that Magnet® nurses were the most tentative and the least driven by risk, which may have influenced their perceptiveness here.

The described weaknesses of current communication methods included: *fear of others' perceptions hampers, missing loops in the chain of communication, feeling unheard and devalued, not being held accountable, and overconfident leaders who don't listen well are seen as weak when asking questions*. The expressed *fear of others' perceptions* aligns with the literature that describes communication hindrance with conflict avoidance [46]. *Missing loops in the chain of communication* fits with the literature that describes the untoward effects of poor communication patterns [41,47,48]. Non-Magnet® nurses' description of *feeling unheard and devalued* offered a new insight. NLP revealed that non-Magnet® nurses were rooted in the past while experiencing the highest anxiety, anger, and sadness. The described weakness regarding overconfident leaders was informed by Magnet® nurses who were shown by NLP to have extremely high insight.

In response to Research Question #3, participants shared suggestions to improve communication regarding SLEs including *avoid punitive measures; leaders should listen and be tuned into their department; use multiple modes of communication; leaders can cultivate environments to empower staff; involve key stakeholders; be consistent, deliberate, and clear in communication efforts; and focus on the patient*. The suggestions *leaders should listen and be tuned in; leaders can cultivate environments to empower staff; involve key stakeholders; and be consistent, deliberate, and clear in communication efforts* cohere with the self-organization concept of Complexity Theory, which represents movement toward higher levels of functioning and order without overt external influence to empower staff and alter processes for the ultimate betterment of patient care [49,50].

The suggestion to use *multiple modes of communication* aligns with the Information Theory concepts of redundancy and probability. As a message is repeated in different ways, the probability of receiving the message increases [51–53]. The insight provided by Magnet® and non-Magnet® leaders to *focus on the patient* aligns with providing quality patient care; however, this approach to improve communication is a new insight [54]. Both leader groups spoke this with authority, while NLP revealed Magnet® leaders held the highest certainty and the non-Magnet® leaders had the highest clout, or confidence in their abilities.

Intriguingly, Magnet® leaders scored the highest for *certainty* and the motivation of *risk*, while Magnet® nurses were found to be the most *tentative* and motivated by *reward*. Although unexpected, the dissimilar features of the Magnet® leaders may represent transformational leadership components that empower Magnet® nurses, who were shown through NLP to have the lowest *anxiety* [55].

NLP revealed that non-Magnet® leaders and nurses shared the lowest *positive emotion* and the highest *anxiety, anger, and sadness*. Non-Magnet® leaders had the highest *clout*, or confidence in their expertise, while having the lowest levels of *analytical thinking*. Conversely, non-Magnet® nurses had the lowest *clout*, while having the highest levels of *causation and differentiation*. This suggests that non-Magnet® nurses lacked confidence

despite being highly skilled at differentiating between ideas, people, entities, and matters of cause and effect. Finally, the non-Magnet[®] leaders had the lowest *authenticity*, suggesting low transparency and guardedness. Considering the Magnet[®] nurses' description of non-transparent leaders as an SLE, the non-Magnet[®] leaders' lack of authenticity represents an event that may have systemic effects.

Implications for Nurse Leaders

This research confirmed the alarming emotional state that many non-Magnet[®] nurses and leaders are facing [9]. Interviews revealed sacrificed personal well-being and the persistence of unsafe patient care conditions. Conversely, nurses and nursing leaders from Magnet[®]-designated facilities held the highest levels of positive emotion, as revealed through the analysis of their speech via NLP. Of note, a vital component of the Magnet[®] vision, is to empower staff through a systematic approach that involves policies, programs, structures, and systems [16]. The empowerment facet of the Magnet[®] vision was supported by this research, which revealed through NLP that the Magnet[®] nurse participants had the highest levels of authenticity and the lowest levels of negative emotion. Magnet[®] nurses spoke at length regarding consistent processes to address concerns, and the encouragement they receive to openly discuss their ideas for improvement. Nursing leaders can and should advocate for shared governance structures that amplify the voices of nurses as they advocate for systemic changes to address the needs of themselves and their patients.

6. Conclusions

This research illuminated the importance of supportive environments and effective communication for the cultivation of healthy hospital systems. The non-Magnet[®] leaders and nurses conveyed deep-seated distress and reported chronic feelings of feeling unseen, unheard, and devalued. In contrast, nurses and leaders working in Magnet[®]-designated organizations, known for transformational leadership, reported empowering environments, which was underscored by their low levels of negative emotions and high positivity. The findings of this study suggest that the presence of leadership visibility, transparent communication, and structured processes hold the potential to positively impact the well-being and safety of both nurses and patients. The use of within-methods data triangulation (WMDT) enriched this study by providing a deepened understanding of the strengths and challenges that Magnet[®] and non-Magnet[®]-designated organizations face when looking to support hospital system health, nurse well-being, and patient safety. The authors propose that organizations consider the application of systemic changes that address nursing burnout and ineffective communication as they work to pursue healthier hospital systems.

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