

Chancellor's Honors Program Capstone Project:
Impact of enhanced communication techniques on pediatric patient outcomes

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Abstract

Recent growth in the significance attributed to the holistic health of individuals has also indicated a need to re-examine the manner in which health care providers treat their patients in order to ensure the highest quality of care. Clear data indicates increased efficacy of results in favorable patient outcomes in symbiotic patient-doctor relationships (Loh & Sivalingam, 2008). This investigation will study the extent to which enhanced communication techniques used by physicians, as a critical factor in those relationships, are able to influence pediatric patient outcomes. Its aim will be to identify such techniques and support their benefit using existing literature and data gathered from personality type results of summer camp counselors. The comparison drawn between the advantageous effects of enhanced communication techniques of camp counselors and pediatric physicians is grounded in the similar levels of intimacy in the relationships and vulnerability within the environment. The results confirm previous literature that an informative model of physician-patient interactions is most appropriate; in addition, the results extend the role of the physician in pediatric care to mitigating patient stress through validation of patient experience, providing assurance through expertise, and constructively involving parents in treatment plans. These factors have been shown to deter the negative physiological and psychological consequences of health-care related stress on pediatric patients and provide an overall benefit to patient outcomes.

Literature Review

The need for enhanced communication techniques stems from the potential threat of the anxiety often experienced by pediatric patients. Lerwick states that children often demonstrate “anxiety, aggression, anger, and similar expressions of emotion...[that] can delay important medical treatment, take more time to complete and can reduce patient satisfaction” (2016). These results, in turn, reflect negatively in the outcome of the patient’s holistic health. While this psychological vulnerability is intrinsic to any pediatric patient, the corresponding results can be either worsened or mitigated by physician response. Communication by physicians that fails to validate the patient will yield a sense of low psychological safety, which is defined as “feeling able to show and employ oneself without fear of negative consequences to self-image, status, or career” (Kramer & Cook, 2004). In relation to pediatrics, the implication here is that communication that excludes patient participation in the discussion or application of treatment is damaging to self-image and thereby increases the negative feelings listed by Lerwick.

The detriments to pediatric health may include other long-term effects as well. For example, patients have been shown to be more likely to develop disruptive behaviors, poor coping skills, unhealthy lifestyles, and psychiatric disorders when exposed to stressors within a healthcare environment (Isokääntä et al., 2018). The level of risk associated with developing each one of these conditions is elevated by increased toxicity and prolonged experience of the stress presenting in the patient. Childhood toxic stress is defined by Franke as “severe, prolonged, or repetitive adversity with a lack of the necessary nurturance or support of a caregiver to prevent an abnormal stress response” (2014). The physiological consequences of this abnormal stress response contribute to the long-term difficulties faced by the patients.

Repeated exposure strains the muscular structures of the body and contributes to inappropriate regulation of hormonal signaling pathways.

The stress response involves the activation of the hypothalamic-pituitary-adrenal (HPA) axis, the sympathoadrenal medullary (SAM) system, and the subsequent release of hormones such as norepinephrine, epinephrine, and cortisol (Esch et al., 2002). Norepinephrine and epinephrine activate a signaling cascade that induces the contraction of smooth and cardiac muscle cells (Esch et al., 2002). This has several important results. The most important results pertaining to potential long-term effects include elevated blood pressure, increased heart rate, and lipolysis. These actions function appropriately to supply the whole body with plentiful oxygen and other resources necessary to sustain intensive activity while under stress. However, when the stress response pathway is repeatedly activated without the application of positive coping techniques or sufficient rest periods serious long-term complications may be developed by the patient.

Chronic hypertension is one such condition that may arise from toxic stress (Esch et al., 2002). If an individual engages the stress response pathway frequently due to repeated subjection to environmental stressors such as undergoing medical treatment, the corresponding increases in blood pressure will establish a new baseline. As a result, the individual will develop chronic hypertension (Esch et al., 2002). Hypertension resulting from receiving medical examinations and treatment is a key consequence of unmitigated stress in health care environments. It has been categorized as “white coat hypertension” and is common to both pediatric and adult patients (Cobos et al., 2015). As the name suggests, the condition is related directly to the interactions between the patient and physician. Thus, the patient’s relationship with the physician is implicated as a pivotal point in patient experience that is capable of resisting deleterious

occurrences such as hypertension as well as other conditions arising from excessive stress, including atherosclerosis.

Atherosclerosis is a condition consisting of the buildup of plaque within blood vessels that may eventually cause blockages inhibiting blood flow. Increased rates of lipolysis activated during the stress response pathway may lead to this chronic condition if induced repeatedly (Esch et al., 2002). When combined with hypertension, atherosclerosis can lead to more serious conditions such as coronary artery disease, chronic heart failure, and even myocardial infarction (Franke, 2014). While the majority of patients will not develop chronic conditions until later in life, the earlier that they begin to experience toxic stress and the more prolonged that stress is, the greater the risk to their health becomes (Isokääntä et al., 2018). Thus, pediatric patients with severe acute and chronic illnesses requiring extensive medical intervention exhibit the greatest vulnerability to the negative long-term effects of toxic stress (Isokääntä et al., 2018).

In addition to the physiological complications that may arise from childhood toxic stress, a variety of psychological conditions may also develop. These are especially common when the pediatric patient is subjected to medical trauma, such as undergoing surgery or a life-threatening injury or illness (Isokääntä et al., 2018). In such cases, children may exhibit depression, chronic anxiety, and in severe cases even suicidal tendencies as they age (Franke, 2014). An individual's risk for these conditions is directly related to the type of medical services received, their pre-existing level of resilience, and the efforts made by the medical professionals to combat negative feelings and thoughts.

There is an inherent level of stress associated with any form of injury or illness. This baseline stress does not predispose the patient to long-term consequences. However, patients may respond differently to various healthcare experiences. For example, those with an acute

condition such as a severe burn may experience increased suffering due to somatic symptom disorder. This condition describes health anxiety and self-checking behavior that is so extreme it becomes more central to the suffering of the patient than the bodily distress itself (Henningsen, 2022). Therefore, this condition may lead to the development of certain phobias or chronic anxiety that may extend beyond the duration of the physical ailment. In contrast, patients awaiting a procedure are more likely to experience heightened state anxiety levels (Pardo, 2022). While this form of anxiety may lead to long-term conditions similar to those resulting from somatic symptom disorder, it is more likely to become resolved after the completion of the procedure (Pardo, 2022). Still, patients are often faced with a combined presentation of these anxiety conditions.

Another key variable affecting the vulnerability to psychological risk of pediatric patients is their level of resilience. Resilience is characterized by the “adaptability and capability to recover from traumatic events and stressful circumstances” such as those present in healthcare settings (Isokääntä et al., 2018). Multiple factors may contribute to a child’s resilience. One such factor is the pediatric patient’s own level of self-confidence, ability to cope with stress, and reasoning skills that may aid in the processing of what is happening to him or her (Franke, 2014). These attributes will affect the patient’s susceptibility to the anxiety-related conditions, somatic symptom disorder and state anxiety. Additionally, social factors such as available material resources, extent of community support, and opportunities for active involvement such as that offered by team sports affect resilience (Alexander, 2012). Another important variable to be considered which applies specifically to pediatric patients is the role of the parent. The patient’s own relationship with the parents, the parents’ relationship with one another, and the overall home environment collectively contribute significantly to the child’s level of resilience

throughout medical treatment (Isokääntä et al., 2018). Thus, negative personal attributes, social situations, or parent relationships may all individually create adverse effects on the patient's health and may further decrease resilience if present concurrently. This lack of resilience, in turn, "may contribute to poor adjustment, slow recovery, disruptive behaviors, and psychiatric disorders" (Isokääntä et al., 2018).

Given these implications of stress on the ultimate outcome of pediatric patients, it is apparent that strategies must be in place to mitigate the negative physiological and psychological impacts of health-care related stress. Physicians are "uniquely positioned to prevent healthcare-induced trauma and reduce healthcare-induced anxiety" (Lerwick, 2016). This is in part due to pediatric patient's tendencies to associate the pain and fear related to a medical condition with the professionals who treat them. Therefore, a more positive and trusting relationship with the physician is likely to reverse these feelings. Also, the expertise believed to be held by the physician grants him or her significant influence over the perception of the situation by both the patients themselves and their parents, who also play a central role in the healthcare experience of the patient (Emanuel and Emanuel, 1992).

An essential component of the pediatric patient-physician relationship is the validation and involvement of the patient in the care being received. Without such involvement, attempts at reassuring the patient often lead to feelings of insecurity, loss of control, and distrust (Loh, 2008). This is because common reassuring phrases such as "you are going to be okay" are too generalized and contradict the pain or anxiety that the patient is feeling in the moment. As an alternative, acknowledging the patient's suffering and providing a simple explanation of the steps being taken to address it has been shown to elevate patient satisfaction with the care received (Linton, 2012). An example of this sort of communication would be stating, "I know

that you are hurting right now, but we are going to give you this medicine that will help to take away that pain after a few minutes.” Validating the patient’s experience in this way effectively produces trust between the patient and physician which mitigates the effects of healthcare-related stress and contributes toward various benefits for the patient’s overall outcome and level of satisfaction.

In addition to validating the experience of the patient, it is similarly important to grant the patient some amount of autonomy in the care they receive. In the case of pediatrics, this autonomy should be given to the patients themselves as well as the parents. A study investigating the different models for physician-patient relationships established that the informative model, in which the physician provides all relevant information to the patient but allows the patient or family to select the treatment method, is the most effective and conducive to positive patient outcomes (Emanuel and Emanuel, 1992). This communication style allows ample space for patients to express and maintain their values related to their care while permitting physicians to exercise an appropriate amount of expertise and guidance. The informative model is also flexible in regard to the amount of medical knowledge the physician shares with the patients. This information should extend far enough that it encompasses all essential concerns and considerations related to the patient’s condition and treatment while not surpassing the patient’s or family’s level of medical literacy. In this way, the child will experience much less stress due to the preparation provided and involvement of the parents or caregivers which supplies various positive effects on patient outcome (Alexander, 2012).

Parental stress is directly related to their child’s stress. Therefore, it is essential for the physician to extend appropriate and comforting communication to the parents as well in order to deter patient distress (Isokääntä et al., 2018). There are several communication strategies that

work to decrease the amount of parental stress. One such strategy is to offer choices. These choices are most effective at reducing parental stress when supported verbally with specific facts related to the patient's condition, age, and other circumstances (Isokääntä et al., 2018). This is consistent with the informative model of physician patient interactions (Emanuel and Emanuel, 2018). Other important aspects of quality communication include asking about the worries, fears, grief, and other feelings held by the parents in addition to providing ample time for them to readjust and respond (Isokääntä et al., 2018). When combined, these strategies make the parents and child feel validated as they are enabled to express their thoughts and experiences without feeling pressured to react quickly. This sort of humanization strengthens the trust between the physician and patient-family unit, thereby reducing or completely avoiding the negative consequences associated with undue stress otherwise felt by the patient and family (Loh and Sivalingam, 2008).

It is further important to note that a physician-patient relationship involving benevolence-based trust establishes a "stress buffering" effect which limits the anxiety and increases the satisfaction of the patient (White, 2005). The subject of patient satisfaction is particularly important as it includes the clinical outcomes experienced by the patient as well as his or her perception of the quality of the care provided. Thus, physicians' communication strategies play a significant role in contributing to the positive physiological and psychological outcomes of the patient.

The necessity for physicians to initiate intentional communication strategies with patients and families stems from the potential for negative emotional responses in patient experience related to the amount of risk in a medical environment. Such risk has been identified by Kramer and Cook as "a key feature of the context within which trust develops" (2004). In these

vulnerable situations, it is important for adults to actively try to understand youths' behaviors, be nonjudgmental, and create personally meaningful connections. A study in camp counselor relationships with young campers found that this sort of intentionality has "positive impacts on both the quality of the relationship as well as in establishing a trusting relationship" (Rubin, 2021). Because physician-patient relationships have been established as an important factor contributing to the physiological and psychological outcome of the patient and the level of vulnerability is comparable to that of a summer camp, results from studies involving counselor-camper relationships may be applied in discussing strategies to improve pediatric patient outcome through optimized communication. Therefore, incorporating the considerations gained from studies in camp counselors into communication techniques of physicians will alleviate the stress originating from the psychophysical risks associated with the patient experience.

Methods

This study makes use of multidisciplinary data and conclusions, including sociology, psychology, and biochemistry. Furthermore, data was obtained via already existing temperament and personality reports for staff from a local day camp between the years 2012 and 2015 to be used in comparison with existing literature on physician disposition and patient response. The personality reports utilized are from the Myers-Briggs Type Indicator because this test is useful in applications to human systems and interactions between human individuals, such as those that take place between a physician and patient (Bayne, 1997). For example, these reports will be used along with performance expectations to discuss the effects factors such as temperament may have on the ability to build quality relationships with youth as well as the impact of such improved relationships on patient outcome. The association between the communication used in the two environments of a summer camp and health care setting is made given the similar level

of vulnerability that produces the heightened stress that enhanced communication techniques seek to attenuate.

This project was completed over the span of two semesters, Fall 2021 and Spring 2022. The research was completed in conjunction with the Chancellor's Honors Program at the University of Tennessee in Knoxville. Discussions between the student and academic mentor, who is also affiliated with the camp which was selected for the comparisons drawn in this study, proved helpful in establishing connections between the effectiveness of communication techniques used by camp counselors and potential benefits of their applications to clinical settings. Data gathered from the current literature combined with conclusions drawn from the camp statistics were then used to establish recommendations for communication strategies effective in lowering the effects of toxic stress on pediatric patients, thereby benefiting the average outcomes of these patients.

Results

The results of the Myers-Briggs Type Indicator utilized for this analysis consist of sixteen personality types which are then categorized into four temperaments. The temperaments establish generalized traits and trends for the "habits of communication, patterns of action, and sets of characteristic attitudes, values, and talents" for those belonging to them (Keirsey and Bates, 1984). Only those temperaments expressing high degrees of the traits deemed most fitting for having a positive impact on patient experience are discussed. The temperament which appears most closely associated with positive outcomes in both the summer camp and healthcare settings is that of the Guardian, characterized by having the sensing and judging types. Sensing implies a preference for factual information as opposed to intuitive feelings, and those within the judging classification seek to accomplish set goals through order, planning, and organization

(Keirsey and Bates, 1984). The combination of these traits in the Guardian temperament tends to yield individuals who are dependable leaders, yet service oriented. They are generally trustworthy caregivers with a strong sense of right and wrong as well as competence in cooperating with others (Keirsey and Bates, 1984).

As shown in *Figure 1*, the Guardian temperament was found to be significantly higher within the staff population at the summer camp than in the general population. In fact, the Guardian population is 10% higher among the camp staff than within the general population. The selectivity of the camp staff for this personality type is likely due to the desired traits and interpersonal skills required for individuals to be hired at the camp. Specific responsibilities outlined for the camp staff include “learn the likes/dislikes of each participant,” “provide opportunities for discussion of individual or group problems or concerns,” and “help all campers develop confidence in themselves and their abilities while nurturing social development” (American Camp Association, 2020). These tasks require direct communication strategies that are consistent with the informative model of physician-patient relationships.

The camp counselor, in serving a leadership role similar to that of a physician, provides guidance and input in regard to the tasks and challenges facing the campers while learning their values so that the advice provided may be adjusted to fit those values (Emanuel and Emanuel, 1992). Then, the decision or group problem is ultimately presented back to the campers to resolve. Thus, through this form of interactions, the campers are validated, a trustful relationship is formed, and the campers mitigate stress and gain confidence. In this way, the negative physiological and psychological effects set forth by toxic stress are greatly reduced or avoided altogether (Franke, 2014). The same positive results would be expected for physicians employing a similar approach to communication with campers.

Consistent with this hypothesis is the fact that Guardians form the greatest percentage of practicing physicians and receive greater preference when being considered for positions as attending physicians (Quintero et al., 2009). This trend is most noticeable with the types ISTJ and ESTJ which share the additional “thinking” trait, implying a tendency to make logical decisions based on factual information and an ability to identify flaws (Keirsey and Bates, 1984). ISTJ types comprise 23.7% and ESTJ types comprise 18.6% of the population of attending physicians, while these numbers drop significantly to 11.6% and 8.7% when considering the general population (Chang et al., 2019). Thus, the personality traits associated with these types and corresponding communication practices likely contribute to their level of fitness for a career in the medical field.

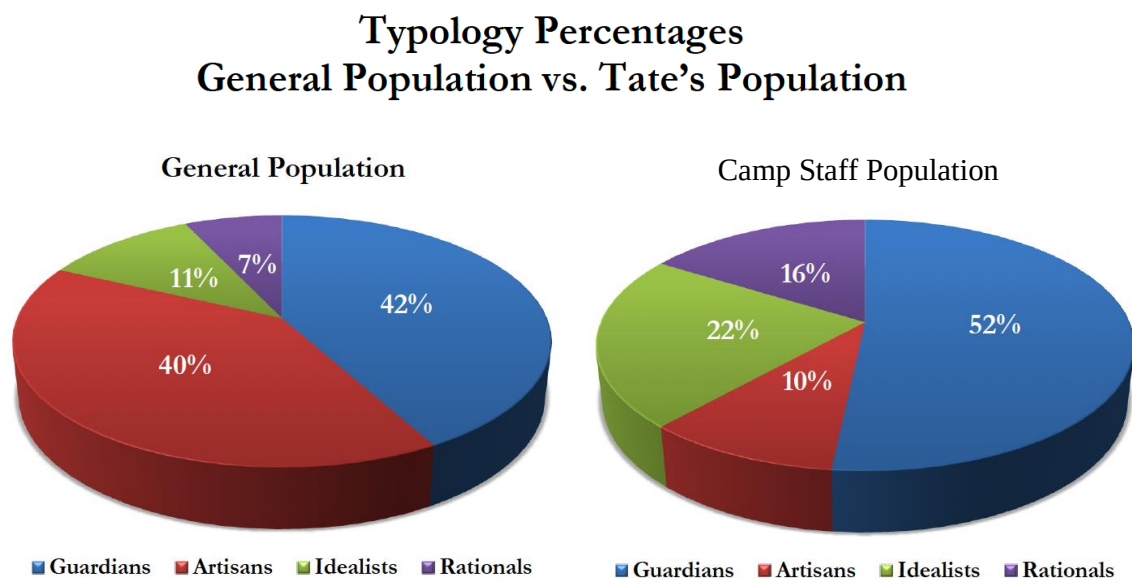


Figure1: Percentages of Myers-Briggs Type Indicator personality temperaments present in the general population versus the camp staff population.

Despite the high presence of Guardians within the physician population, the remaining physician personality types may require additional training in communication strategies necessary to optimize patient interactions, and even the Guardians themselves can improve

patient outcomes by honing their skills through lessons focused on the subject of communication. This training may include details related to the negative consequences of failure to establish an optimal physician-patient relationship, strategies for patient validation, and the importance of integrating parental involvement into patient treatment (Isokääntä et al., 2018).

An additional finding within the Guardian temperament from the personality data gathered from the summer camp is summarized in *Figure 2*. The personality type known as the Protector, a sub-type of Guardian, exhibits a general decrease in prevalence as the age group with which the staff work increases. Key attributes of Protectors are that they typically work to establish and maintain stability, are patient and self-sacrificing, and tend to be loyal and caring companions (Keirseey and Bates, 1984). These traits translate to the results apparent in *Figure 2* in that the younger individuals are more chaotic in their emotions and thoughts; thus, they benefit from the stability provided by the protectors. Additionally, in order to communicate complex medical information in simple terms for very young children, physicians must be patient and repeat information frequently in order to make the patients feel secure and well-cared for (Isokääntä et al., 2019).

Lastly, the Protector's dedication to others is reflected in a general goal to preserve family ties. At the context of the camp, this is relevant in that parents are vital to understanding the younger children's routines and reinforcing the desired habits at home. This is confirmed again in the specific responsibility expected of the camp staff that they "maintain good public relations with campers' parents" (American Camp Association, 2020). When this is applied to the healthcare environment, the parental involvement in conversation commonly initiated by those of the Protector personality type are helpful to reducing the patient's negative stress by lowering the level of parental distress (Franke, 2014). Additionally, improved physician

relationships with parents are likely to reinforce these familial relationships and increase the likelihood of the child adhering to the treatment plan agreed upon by the physician and family unit (Lerwick, 2016). Such adherence is essential to the success of treatment; therefore, by physicians communicating with families in this manner, they are directly contributing to better outcomes for their pediatric patients. While the roles and tendencies of the Protector personality type provide insight into plausible benefits of certain communication techniques, further studies are needed to solidify the extent of the benefits provided by such techniques.

However, it has been demonstrated that validating techniques, like those proposed here are capable of reversing the stress response. For example, validating statements such as “It’s okay to be scared” in place of invalidating comments like “there is nothing to be afraid of” can actually slow heart rate (Demasio, 1999). In this way, effective communication employed by pediatric physicians directly combats the physiological detriments to patient health caused by the toxic stress often experienced while receiving medical services.

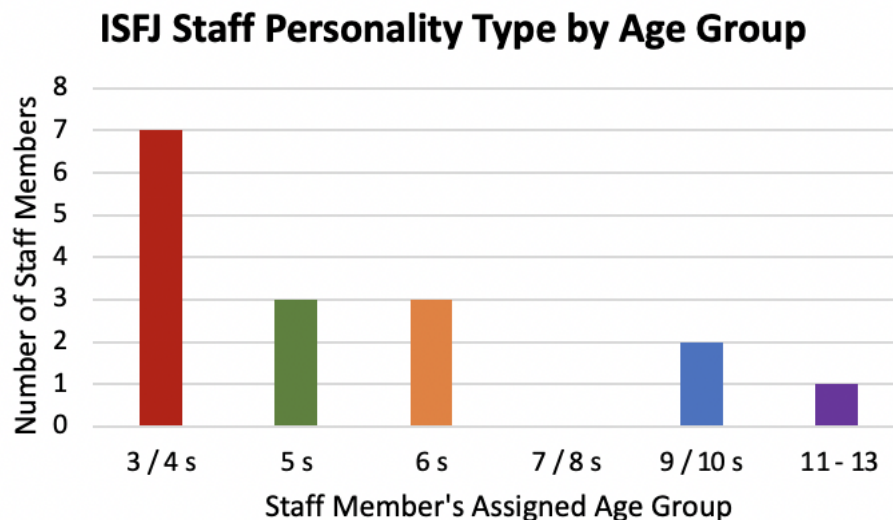


Figure 2: Variance in the number of staff with an ISFJ personality type according to the age group with which the staff work.

Conclusion

Characteristics such as empathy will result in heightened patient satisfaction and benefit treatment. The frugal, dedicated, and caring attributes naturally associated with the Guardian temperament has established this categorization of personalities as a significant portion of the physician population in accordance with the benefits their preferred manner of communication may provide to pediatric patients. It has been shown that enhanced communication techniques are able to elevate trust in relationships. This qualitative improvement in relationships is expected to translate to better outcomes for pediatric patients. Therefore, the conclusions drawn from this study support a greater emphasis on communication techniques used by physicians as a means to limit the negative and increase the positive effects on patient outcomes. While the results presented here justify the benefits of specific communication strategies to be used by pediatric physicians, further investigation involving longitudinal studies of pediatric patient outcomes will be necessary to determine the extent of such benefits in relation to patients' long-term health.

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