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Original Research Article

Assessing the impact of the human resources department's nurturing connect program on compassion and empathy in physicians and surgeons and its influence on patient advocacy

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ABSTRACT

Background: Empathy and compassion, key to medical practice, enhance patient adherence to treatments. These traits can be developed, not just inherent. This study implemented the "human resources nurturing connect (HRNC)" program to boost empathy and compassion in healthcare providers, evaluating its impact on patient advocacy over time.
Methods: This study was a two-arm, prospective, randomized, single-center conducted from March 2023 to June 2024 at Bhaktivedanta hospital and research institute, Thane, India. Thirty doctors (age 25 to 60) were randomly assigned to intervention and control groups (15 each). The intervention group underwent the HRNC Program to enhance empathy and compassion, measured by the Bhaktivedanta's index of compassion and empathy in physicians and surgeons (BICEPS) scale, and its effect on patient advocacy assessed by the PAS scale, conducted at baseline, 3, 6, 9, and 12 months.
Results: Both BICEPS and PAS scores increased more significantly in the intervention group compared to the control group ($p<0.0001$). The intervention group's BICEPS scores rose from 65.47±4.99 at baseline to 83.79±7.19 at 12 months, while the control group showed minimal changes, with scores increasing from 65.48±4.41 to 67.69±5.26. The PAS score in the intervention group also increased significantly ($p=0.001$) from mean score of 64.48±7.39 to 90.12±10.13, with a percentage change from 21.39% to 39.76%. In contrast, the control group showed a slight increase from 63.53±3.26 to 65.89±3.34, with a percentage change from 0.87% to 3.72%.
Conclusions: Study evidenced effectiveness of targeted developmental interventions in fostering empathy and compassion among healthcare providers resulting in better patient outcomes, overall healthcare quality which also translate in patient advocacy.

Keywords: Empathy, Compassion, Doctors, Developmental interventions, Training modules, Feedback

INTRODUCTION

Empathy is essential for physicians, allowing them to identify each patient's unique needs and experiences. Despite its importance, there is no universally accepted definition or "gold standard" method for studying empathy.[1,2] Empathy is a multifaceted concept, encompassing cognitive, emotional, behavioural, interpretive, and moral dimensions.[2,3] The cognitive aspect of empathy involves understanding another person's inner experiences and feelings, as well as adopting their perspective. The affective aspect involves the ability to emotionally engage with another person's experiences and feelings.[4] It is crucial to distinguish between empathy and sympathy in patient care contexts.[5] Empathetic physicians share their understanding with patients, while sympathetic physicians share their emotions.[6]

According to WHO, three high-order themes that affect empathy are organizational, personal and interpersonal, and demographics.[7] Lack of empathy is correlated with physical, emotional, and work-related issues such as

depression, burnout, sleep disturbance, and poor concentration, all of which could negatively impact patient care.[8]

Research using the Jefferson scale of empathy shows that empathy levels in medical students and residents typically decrease as their education and training advance.[9] Empathic physicians foster an environment of safety and trust, encouraging patients to share vital information and enhancing patient satisfaction and compliance.[10] Various studies across different patient groups have reported positive health outcomes associated with empathy. For instance, research on diabetic patients has found a positive correlation between empathy and the management of their disease.[11,12] Similarly, cancer patients experience reduced stress, depression, and aggressiveness when they receive empathetic nursing care.[13]

Research indicates that physicians with higher levels of empathy experience less burnout and depression, and enjoy a greater sense of well-being.[9,14] When doctors exhibit high empathy, it cultivates an environment where the entire medical team gains a deeper understanding of patients, leading to more effective treatments. This not only enhances their professional expertise but also reinforces their commitment to their roles.[15] A recent psycho-educational program in Barcelona, Spain, found that a mindfulness intervention improved empathy and reduced burnout among primary care practitioners.[16] A systematic review indicates that efforts to cultivate empathy among physicians often include comprehensive communication skills training. These interventions feature didactic sessions on effective communication and empathy, experiential learning opportunities, and workshops designed to enhance specific skills and behaviours.[17,18]

In medicine, compassion is highly valued by patients, required by medical regulatory bodies, and increasingly associated with positive outcomes for patients, families, professionals, and healthcare systems.[19] Research shows that patients want a compassionate physician; and that compassionate care is central to patient satisfaction.[20] Compassionate care predicts faster recovery, greater autonomy, lower intensive care utilization and more responsible healthcare management.[21,22] Similarly, compassion-related trainings have been associated with objective benefits, including better disease control and reduced metabolic complications among patients with diabetes.[12] Within health care systems compassionate care is associated with lower health care costs (e.g. better patient communication resulting in lower spending on unnecessary diagnostic tests and referrals).[23] More importantly, healthcare providers are likely to treat traumatized individuals on a daily basis; hence they are at a greater risk of developing compassion fatigue unless there is a usage of healthy and adaptive coping strategies.[24] A research highlight how compassion fatigue adversely affects not only the care-giving professionals, but also the workplace; resulting in increased use of sick days, higher turnover and a drop in productivity.[24,25] Functional magnetic resonance imaging (fMRI) studies reveal that when a person experiences empathy, the brain's pain centers are activated. In contrast, when focusing on compassion, the reward pathways (mesolimbic system) are activated.[26] These data suggest that while experiencing empathy alone may result in negative outcomes for clinicians, integrating compassion training may foster clinician well-being.[27]

Research on empathy and compassion in healthcare has predominantly centered on the experiences of healthcare workers and the effectiveness of various interventions. However, there has been little investigation into how empathy develops among healthcare professionals and its effect on patient care.[28,29] In general, the study of empathy and compassion in medicine has primarily relied on quantitative self-assessment methods, with qualitative approaches being rarely used, Furthermore, there is a substantial lack of literature when it comes to exploring the relationship among all the three variables (i.e., empathy, coping strategies, and compassion fatigue).[30] The current study would help in designing interventions that may aid doctors in maintaining appropriate levels of empathy and get an insight about adaptive coping strategies to prevent compassion fatigue which in turn will enhance the patient advocacy towards the doctor. Therefore, the objective of this study is to evaluate the impact of the HR department's self-developed nurturing connect program on compassion and empathy in physicians and surgeons, and its effect on patient advocacy towards doctors. This evaluation was based on BICEPS scale with assessments provided by the doctors themselves, as well as ward clerks and nurses who work closely with each doctor. Additionally, patient advocacy was measured using the patient advocacy scale (PAS). Each tool was designed and validated by experts.

METHODS

This study was a two arm, prospective, randomised, single centre study, conducted from March 2023 to June 2024, at Bhaktivedanta hospital and research institute, Thane, India. A total of 30 doctors (25-60 years) were randomized by simple randomisation technique, post informed consent form, 15 in each in intervention and control group.

Doctors randomized into the interventional group received a two-part intervention. The first part consisted of the "HRNC program," designed to enhance empathy and compassion in physicians and surgeons through self-designed and expert-validated training modules. The second part involved evaluating the program's impact on compassion and empathy in doctors using the BICEPS scale, and its effect on patient using the PAS both scales were self-designed and validated by experts.

As part of the HRNC program, the intervention group received training on "demonstrating sense of urgency" and "demonstrating true concern." This training helped participants recognize behavioural factors that hinder a

sense of urgency, emphasizing that while medical situations may be routine for doctors, they are unique and critical for patients. The training covered aspects of respecting patients' time, reducing waiting times, and acknowledging the long-term impact of the doctor-patient relationship, which often results in lifetime ownership and nurturing. The "True concern" training focused on showing genuine respect and care for patients. It encouraged doctors to take full ownership of patient care, collaborate with other specialties for a better patient experience, and invest time in explaining treatments to patients. This training emphasized treating patients as individuals, not just as diagnostic reports, and going the extra mile to solve their medical problems while maintaining contact even after recovery. The holistic treatment approach was also promoted, considering the needs of the body, mind, and soul. Additionally, personalized coaching was provided on handling emotionally volatile situations, remaining approachable, polite, and friendly under pressure, and apologizing for delays or long waiting times. Doctors were guided on ensuring patient compliance without being autocratic, maintaining transparency, and prescribing judiciously to limit unnecessary diagnostic tests and medications. Team conciliations were conducted between each intervention group doctor and their assisting team members to foster a warm and friendly environment. Goal setting was implemented to hold each team member accountable for individual and team performance and patient experience. The team was encouraged to uphold the patient's dignity, especially in vulnerable situations. Whereas, in control group no such interventions were conducted.

Empathy, compassion in physicians and surgeons enrolled in both the groups were evaluated using the BICEPS scale, an expert validated questionnaire consisting of 25 questions, in which a cumulative score was considered by the questions filled by doctors themselves, one head nurse and one ward clerk. The BICEPS scale assessed various aspects of doctors' behaviour, including patient care, commitment to their roles, interpersonal relationships with colleagues, burnout, and interactions with patients' relatives. The evaluation of BICEPS score was based on a rating scale with the following options: never, rarely, sometimes, frequently, and always, corresponding to scores of 1 to 5, respectively. Higher scores indicated greater levels of empathy and compassion. Similarly, the effect of the HRNC program on patient advocacy was assessed using the PAS, an expert-validated and self-designed scale consisting of 25 questions. These questions focused on doctors' behaviour towards patients and their relatives, and how compassionately and empathetically the medical situation was handled by them. The PAS score was also based on a rating scale from 1 to 5 (never, rarely, sometimes, frequently, and always). A cumulative patient advocacy score for each doctor was calculated by combining evaluations from seven patients for each respective doctor. A higher score indicated greater patient advocacy towards the doctor.

The assessment using the BICEPS and PAS score in both the groups were conducted at various timepoints like baseline, 3 months, 6 months, 9 months, 12 months in order to see the effect of "HRNC" program on parameters of empathy, compassion in physicians and surgeons and it effect on patient advocacy overtime. The numeric data and categorical data summarized by descriptive statistics like, n, mean, frequency count and percentage. Normality test performed before applying any statistical test. BICEPS score in both groups compared through 'Mann-Whitney' test. A $p<0.05$ considered statistically significance.

RESULTS

A total of 30 doctors were randomised in the study with 15 doctors in intervention and control group respectively. A cumulative BICEPS score, which included evaluations from doctors themselves as well as from nurses and ward clerks, was used in the assessment. In the intervention group, the mean age of doctors was 43.94 years, compared to 40.31 years in the control group. For nurses, the mean age was 39.88 years in the intervention group and 31.8 years in the control group. Additionally, the mean age of ward clerks was 35.84 years in the intervention group and 35.32 years in the control group (Table 1).

When cumulative BICEPS scores were compared between intervention and control group, it was observed that the empathy and compassion increased significantly ($p<0.0001$) with the BICEPS score of 65.47±4.99 at baseline which increased to 83.79±7.19 at 12 months post intervention in comparison the cumulative rise BICEPS score in control group was minimal with an increase from 65.48±4.41 at baseline to 67.69±5.26 at the timepoint of 12 months since randomisation (Table 2).

Comparison of cumulative PAS scores between the intervention and control groups signifies a statistically significant increase in patient advocacy towards doctors in the intervention group ($p<0.0001$). In the intervention group, PAS score increased from 64.48±7.39 at baseline to 90.12±10.13 at 12 months (Table 3), accompanied by a positive percentage change from 21.39% at 3 months to 39.76% at 12 months (Table 4). This indicates a significant improvement in patient advocacy for doctors who participated in the HRNC intervention. Conversely, control group exhibited minimal increase in PAS scores, increasing from 63.53±3.26 at baseline to 65.89±3.34 at 12 months (Table 3). Percentage increase slight, starting at 0.87% at 3 months and reaching 3.72% at 12 months post-randomization (Table 5). These findings suggest that patient advocacy towards doctors who did not receive HRNC training remained largely unchanged.

Additionally, when BICEPS and PAS scores compared in both groups, statistically significant increase in scores observed in both groups (Intervention=$p<0.0001$, control=$p<0.0001$). However, increase in r_s value notably higher in intervention group than in control group (Table 6).

Table 1: Demographic details of participants.

Participants	Mean age (in years)	
	Intervention	Control
Doctors (n=15)	43.94	40.31
Nurses (n=15)	39.88	31.8
Ward clerk (n=15)	35.84	35.32

Table 2: Comparison of BICEPS score at different timepoints between intervention and control group.

Timepoints	Intervention, (n=15)	Control, (n=15)	MW test	P value
	Mean±SD	Mean±SD	Z value	
At baseline	65.47±4.99	65.48±4.41	0.19	0.85
At 3 months	75.67±5.78	65.86±4.62	3.73	<0.0001
At 6 months	78.71±5.99	67.11±4.63	4.29	<0.0001
At 9 months	80.9±6.18	67.4±5.02	4.58	<0.0001
At 12 months	83.79±7.19	67.69±5.26	4.63	<0.0001

Table 3: Comparison of PAS score at different timepoints between intervention and control group.

Timepoints	Experiment, (n=15)	Control, (n=15)	MW test	P value
	Mean±SD	Mean±SD	Z value	
At baseline	64.48±7.39	63.53±3.26	0.5	0.62
At 3 months	78.27±8.94	64.08±3.16	3.94	<0.0001
At 6 months	82.72±9.45	65.03±3.09	4.3	<0.0001
At 9 months	85.5±9.60	65.55±3.29	4.46	<0.0001
At 12 months	90.12±10.13	65.89±3.34	4.63	<0.0001

Table 4: Comparison of PAS score at different timepoints in intervention group.

Timepoints	PAS score	MW test	P value	Percentage change
	Mean±SD	Z value		
At baseline	64.48±7.39	-	-	-
At 3 months	78.27±8.94	3.409	0.001	21.39
At 6 months	82.72±9.45	3.408	0.001	28.29
At 9 months	85.5±9.60	3.408	0.001	32.6
At 12 months	90.12±10.13	3.408	0.001	39.76

Table 5: Comparison of PAS score at different timepoints in control group.

Timepoints	PAS score	MW test	P value	Percentage change
	Mean±SD	Z value		
At baseline	63.53±3.26	-	-	-
At 3 months	64.08±3.16	3.424	0.001	0.87
At 6 months	65.03±3.09	3.42	0.001	2.36
At 9 months	65.55±3.29	3.41	0.001	3.18
At 12 months	65.89±3.34	3.412	0.001	3.72

Table 6: Correlation between BICEPS and PAS score at different timepoints in intervention and control group.

Correlation between BICEPS and PAS score	Intervention group		Control group	
	r_s value	P value	r_s value	P value
At baseline	0.814	<0.0001	0.746	<0.0001
At 3 months	0.850	<0.0001	0.707	<0.0001
At 6 months	0.863	<0.0001	0.704	<0.0001
At 9 months	0.857	<0.0001	0.650	<0.0001
At 12 months	0.939	<0.0001	0.729	<0.0001

DISCUSSION

Empathy and compassion are closely related terms. Empathy is the ability to perceive, feel, and understand another's emotions, while compassion is an emotional response to another's pain or suffering, accompanied by a genuine desire to help.[30] Empathetic and compassionate care is associated with superior patient adherence to prescribed therapies.[31] A lack of compassion among doctors is linked to decreased patient well-being and reduced professional motivation. While the systemic deficiency of compassion and empathy in healthcare is acknowledged, specific studies on medical compassion are scarce. Most research has focused on related concepts such as empathy and caring.[32] Empathy and compassion are not simply inherent traits, which health care providers intrinsically either do or do not possess, but can be enhanced through training interventions.[33] In the current study, the HRNCs program was implemented to enhance the combined concept of empathy and compassion. This program assessed empathy and compassion using cumulative BICEPS scale scores from doctors, nurses, and ward staff, and evaluated its impact on patient advocacy through PAS scores at various time points. This approach enabled the tracking of changes in empathy and compassion over time. Similar to the present study, a USA-based program for fourth-year medical students aimed to cultivate compassion through customizable modules, evidence-based cognitive exercises, group discussions, and written reflections. Students who engaged in this compassion curriculum showed a significant increase in their total compassion scores (p=0.012) compared to those who did not participate.[34]

A study in Belgium showed significant improvements in effective empathy among 115 oncology nurses who participated in a 105-hour empathy training program. This program, which used simulated interview videotapes, led to lasting increases in empathy for 3 to 6 months after completion. Additionally, trained nurses demonstrated significantly greater levels and depth of emotional expression compared to their untrained peers (p=0.023).[35] In a 2017 study, 158 medical students were randomly assigned to either an intervention group or a control group. The intervention group received empathy skills training, and their empathy levels were evaluated using an objective structured clinical examination (OSCE). Findings showed that participants in the intervention group exhibited notably higher empathy levels, as assessed by their colleagues, compared to those in the control group.[36] In a study in China, 106 doctors were divided into intervention and control groups to examine the effects of 8 weeks of loving-kindness meditation (LKM) on mindfulness, empathy, and communication skills. The LKM group showed significant improvements in empathy and communication compared to the control group.[37] Similarly, in the current study, empathy and compassion were measured using the BICEPS scale. The intervention group showed a significant increase in these scores over one year, with assessments every three months. Their mean BICEPS score increased from 65.47±4.99 at baseline to 75.67±5.78 at three months, and further to 83.79±7.19 at twelve months. In contrast, the control group exhibited only a minimal increase, with their mean BICEPS score of 65.48±4.41 at baseline to 67.69±5.26 at twelve months (Table 2). Also, a study reported similar positive outcomes from an organizational intervention involving 1181 medical students. These students participated in wellness sessions aimed at enhancing empathy, leading to significantly higher self-ratings of empathy and compassion ($p<0.01$).[38] Consistent with previous research, the current study demonstrates a statistically significant increase in empathy and compassion parameters in the intervention group ($p<0.0001$) (Table 6). Although the control group also showed a significant increase in these scores at the timepoint of 12^{th} month ($p<0.0001$) (Table 6), the r_s value change in scores was substantially higher in intervention group compared to the control group (Table 6).

A non-randomized study of mindful communication training for primary care physicians (27-34 hours) showed improvements in physicians' self-reported patient-centred attitudes, empathy, and well-being, along with decreased burnout. Physicians received patient ratings, with pre-training scores averaging 4.6±3.1 and post-training scores averaging 4.9±2.5. The primary outcome, the change in patient-rated CARE scores, revealed that the empathy training group had significantly greater improvements compared to the control group, with a difference of 2.2 ($p=0.04$).[39] In alignment with the previous study, the current research demonstrates a statistically significant increase ($p=0.001$) in patient advocacy towards doctors for those treated by physicians who received HRNC. This was measured using the PAS score, which showed a substantial rise over time (Table 4). In the control group, there was also a statistically significant relationship between PAS scores at different time points ($p=0.001$). However, the increase in PAS scores for patients treated by doctors without HRNC was minimal, rising from 63.53±3.26 at baseline to only 65.89±3.34 at the 12-month mark. The percentage change was similarly small, increasing from 0.87% at the 3-month mark to just 3.72% at the 12-month mark (Table 5).

The primary limitation of this study is the small sample size, which indicates a need for future research with a larger sample to achieve more robust and generalizable results. Additionally, the evaluation of HRNC's effect on patient advocacy using the PAS scale was based on scores from different sets of patients at each timepoint (baseline, 3 months, 6 months, 9 months, 12 months), which may have introduced variability. Consistent evaluations from the same patients over time could strengthen the reliability of the findings.

CONCLUSION

Both empathy and compassion can be developed through structured developmental interventions. In this study, the

HRNC program was implemented, resulting in significant improvements in doctors' empathy and compassion, which, in turn, enhanced their treatment approaches and led to increased patient advocacy. Study evidenced effectiveness of targeted developmental interventions in fostering empathy and compassion among healthcare providers resulting in better patient outcomes, overall healthcare quality which also translate in patient advocacy.

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