

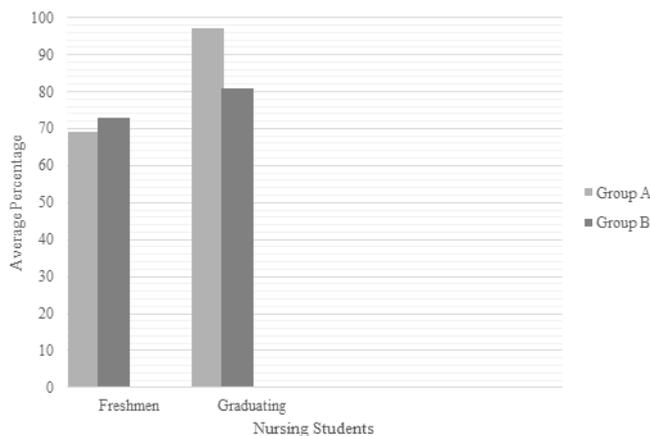
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### Graphical Abstract



### Abstract

As the world becomes more diverse, effectiveness of interaction and empathy continue to decrease. In the nursing career, it is important to keep an open-mind and an empathetic heart to execute the maximum quality of care. Fiction literature has proven to engender prosocial skills along with empathy and cognitive participation. FMRI's have shown significant correlations between literary pieces and neural activity in parts of the brain associated with empathy. Because nursing students have shown tremendous decrease in empathy approaching their graduation date, this study tests the effectiveness of fiction literature to prove the enhancement of empathy in the nursing students. This research included an equal number of female and male participants entering the nursing program at West Coast University. Subjects were evaluated on empathy before entering the program, then once more as they were about to graduate. The participants were divided into two groups; one of them received a fiction literature course that focused on empathy and the other did not. The group that was enrolled in the fiction literature course excelled remarkably compared to the group who was not stimulated through fiction literature. Because fiction literature allows nursing students (through guided imagery and other literary tools), the group with the additional course comprehended empathy and embraced it better than the control group.

**Note:** This paper was an assignment for a nursing school General Education Capstone course. The student writer did not conduct a real study; she rather simulated a study to demonstrate writing/research skills, creativity, scientific knowledge, and an understanding of

	how to generate and analyze data. The corresponding author is the student's instructor, who guided the student on each section of the scientific paper, providing feedback on how to "conduct" the study and on how to revise the writing.
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## Introduction

### Literature Review

One of the major issues nurse educators are facing is the decline in empathy in nursing students as they get closer to graduating. As exams get harder, study sessions become longer, and the board exam gets closer, nursing students are likely to prioritize empathy as last on their list. A quality so crucial to the nursing career should be improved continuously, and considered before beginning such an empathy demanding occupation (Atherton and Kyle, 2014). Atherton and Kyle (2014) disclose that empathy has no single definition and is not to be confused with sympathy, but can be described as the ability to understand another person emotionally followed by actions. Medical professionals who exhibit empathy are more likely to have an accurate diagnosis and effective treatment plan through honest communication (Stepien and Bernstein, 2006). When patients feel sincere interest in their care from the healthcare professional they are more likely to give more information, making it easier to diagnose the signs and symptoms and implement a treatment plan (Stepien and Bernstein, 2006). Patients are more likely to be compliant with medical advice when they trust the healthcare provider because that personal relationship is present. Not only is empathy imperative between a nurse and patient, but essential between colleagues in the workplace. Viggiani, Charlesworth, Hutchinson, and Faria (2005), agree that introducing empathy in the workplace makes for a compelling team of care, improving social interactions, and providing effective therapy. Many nursing programs have tried to approach this issue by implementing an additional literature course. Literature allows the reader to use imagination to develop a deeper understanding of a patient's situation and emotions (McAllister, Lasater, Stone and Levett-Jones, 2015), thus, creating a personal relationship with the patient and increasing empathy. McAllister, Lasater, Stone and Levett-Jones (2015) also reveal that by reading fiction literature, nurses are able to gain new perspective, imagining themselves as the patient in different scenarios. As critical thinking and knowledge develops in these future healthcare professionals, empathy and effective communication increases.

Literature can affect a person in a plethora of ways, one of those being empathy production. Using an fMRI (functional magnetic resonance imaging) researchers are able to create images of the brain and its neural activity while a literary piece is read or heard by a participant. Nijhof and Willems (2015) believe that the neurocognitive mechanisms underlying fiction comprehension are unclear and conducted a similar study to better understand the relationship between the literature and its impact on the brain. In the study, Nijhof and Willems used eighteen participants to listen to literary pieces using MR-compatible earphones while lying in the MRI scanner. Their results showed neural activation while the participants listened to excerpts from literary stories, discovering evidence that engagement with fiction renders people more empathic. An fMRI is the ideal neural imaging equipment for this research type because it measures the brain activity by detecting changes while simulation is conducted. Another fMRI study conducted by Larence, Shaw, Giampietro, Surguladze, and Brammer (2006) identifies regions of the brain correlated with empathy. The premotor cortex/precentral gyrus, inferior frontal gyrus and medial frontal lobe were activated during a social perception task based on dynamic stimuli (Larence et al., 2006). The use of neural imaging has been around for decades, but the investigation for the relationship between empathy and literature is still a work in progress. These two, previously mentioned, studies show the possibility to measure neural activity with empathetic and literary simulation. Research shows that an fMRI can result in reliable results demonstrating blood

flow in various regions central to emotion processing during specific task conditions (Gee, McEwen, Forsyth, Haut, Bearden, Addington, and Cannon, 2015). A study performed by Gee et al. (2015) has confirmed the reliability in imaging signals of activation of emotion processing regions in the brain when stimulated by relevant tasks. Study/test results are only viable when proven in research using reliable sources and equipment.

Oxytocin is a neuropeptide hormone that provokes emotional and social behavior (Lane, Luminet, Rime, Gross, de Timary, and Moira, 2013). Oxytocin is commonly used to cause or strengthen labor contractions, but this neurotransmitter is also known to release to empathy-stimulating responses. The hormone is released by the posterior pituitary and is synthesized in the hypothalamus (Crespi, 2016). Lane et al. (2013) have participated in a study to support oxytocin's ability to facilitate pair-bonding and social interactions. Their test included sixty test subjects (30 men and 30 women), and each subject was given either oxytocin or a placebo. Participants watched a film on friendship and camaraderie and were asked to write a narrative. Two judges reviewed the participants' written experience and found some papers where a subject's emotions were so intense, they could not express themselves accordingly with words. Results were significant because men, who are usually less inclined to reveal emotions, shared as much as women. These findings imply that releasing this hormone can be used to improve social interaction and patient to therapist communication (Lane et al., 2013). Lane et al. (2013) provided us with the first evidence to prove that oxytocin can maximize social interactions, such as empathy. It is also believed that 3,4-Methylenedioxymethamphetamine (MDMA) and norepinephrine produces and/or enhances empathy and sociability (Hysek et al., 2014). Hysek et al. (2014) created a study that included thirty-two participants, using an equal number of both sexes, who were in a placebo-controlled, double-blind, random-order experiment. MDMA increased plasma levels of cortisol, prolactin, and oxytocin, which have been associated with prosocial behavior (Hysek et al., 2014). "The MDMA-induced release of oxytocin and overall very similar emotional-cognitive effects of oxytocin and MDMA might implicate oxytocin as a crucial mediator of the effects of MDMA on empathy and social behavior" (Hysek et al., 2014). As per Hysek et al. (2014), because of blood-brain barrier, directly testing these effects will be difficult. Oxytocin, according to multiple researchers, is a key component for the engendering of empathic and prosocial behavior. Studies have consisted with theories that pharmacological manipulations of the previously mentioned neurotransmitters have been effective. Administering oxytocin intra-nasally has become a common way for conducting studies for its effects. As previously mentioned, oxytocin has demonstrated the enhancement of emotion, but it can also effect perception of others' emotional facial expressions. Oxytocin can sharpen the impressions such that happy faces appear happier and less angry, whereas angry expressions appear angrier and less happy (Leknes, Wessberg, Ellingsen, Chelnokova, Olausson, and Laeng, 2013). Leknes, Wessberg, Ellingsen, Chelnokova, Olausson, and Laeng (2013) also correlated oxytocin to pupil dilation; when oxytocin stimulus increased, so did pupil dilation. According to their analysis, large pupil sizes are associated with increased attractiveness and social behavior in humans. Because of the many uses of oxytocin and its positive impact on social interaction (including empathy), professionals have been searching for evidence for the physiological mechanism whereby this hormone interacts. The understanding of the hormonal mediation can lead to a better comprehension of human psychiatric disorders and enhancement of empathy.

According to Seibert, Stridh-Igo and Zimmerman (2002), "a person's culture and ethnicity determine how he/she perceives the world and its contents." Healthcare professionals are required to be aware of differences between groups of people and their attitudes/meanings attached to events such as depression, pains and disability (Seibert, Stridh-Igo and Zimmerman, 2002). Healthcare professionals are not expected to know every aspect of every culture, but acquire sensitivity in understanding cultural differences. Reading fiction literature can help envision healthcare through a patient's perspective by the use of descriptive imagery. Incorporating literary texts in the medical education can develop contextual awareness, empathy, and ethical reasoning (Flood and Farkas, 2011). Reading can also educate individuals on different cultural backgrounds and illustrate how they perceive the world or certain situations in the medical field. Literature appears to involve cognitive participation and because of the use of language, readers have more control over emotional distance (Mar, Oatley, Djikic and Mullin, 2011). A person's inclination (culture) and literary impact (through

imagination) can either affect or engender empathy (Tamir, Bricker, Dodell-Feder, and Mitchell, 2016).

Iannone (2005) claims that the fear of being unique in young Americans is not allowing them to love their own traditions, language or literature. Iannone (2005) believes that reading is a solitary activity, but those who read literature also participate in social and cultural activities. The rapid increase in the Hispanic population has brought down the literary readers, since Hispanics have the lowest share of literary readers (Iannone, 2005). Because people usually acquire what they see or are taught at home, this issue is still rising in numbers. Empathy is also influenced by culture, and culture influences literature. Culture influences the type of reading, if reading is implemented at all, and the interpretation of the literary piece. Nursing book clubs are often held to continue education, reflect and discuss challenging healthcare issues, such as empathy and cultural diversity in the field (Greenwald and Adams, 2008). This kind of social interaction helps nurses (of different cultural backgrounds) share their own perspectives on issues or topics of discussion.

Developing empathy through children's literature has been encouraged to develop social adjustment from a young age (Cress and Holm, 2000). Promoting critical thinking and social skills from literary analysis can sway a child's perspective and engender empathy. Research implies that children's literature should expose messages about the relationship among bilingual language, culture, and identity (Chappell and Faltis, 2007). Chappell and Faltis (2007) claim that educators using this literary tool can introduce an empathetic message about values, attitudes, and beliefs individuals endure on a daily basis. Culture and empathy possess the ability to alter the way one may perceive a piece of literature and the meaning of it, from learned perspective or personal experiences. Engendering prosocial skills through literature at an early stage in life increases literary skills and critical thinking. Empathy can be engendered through literature, but also influenced by culture. Considering the mixture of cultures and its differences coexisting in a certain area/region, people tend to show reduced empathy for those with dissimilar cultures (Heinke and Louis, 2009).

As the United States becomes more diverse, effectiveness of interaction and empathy begins to decrease due to the population. Interdependent cultures and independent cultures have different attitudes towards cultural diversity; independent cultures fear that it might disrupt their harmony (De Greck et al., 2012). De Greck et al. (2012) used an fMRI to examine Chinese (interdependent culture) and German (independent culture) healthy subjects during an empathy task, a control task and baseline condition. Both groups reacted differently, but results imply that enhanced emotion regulation during empathy with anger in the interdependent culture is mediated. Study results suggest that empathy is provoked in many ways, but varies depending on culture and environment (De Greck et al., 2012). Socializing is effortless with others who share the same culture, patients feel a stronger, personal connection to the healthcare provider when this similarity is present. As minority groups grow and cultural diversity in the health system is more common, challenges to clinicians or other medical professionals arise (Zayas and Torres, 2009). Acknowledging a patient/client's cultural background is important but should not negatively affect empathy from the medical professional.

## Materials and Methods

The concept of empathy in nursing students was based on a measurement of self-evaluation surveys. Because there seems to be a decline of empathy in nursing students, nursing students were questioned about empathy at the beginning of nursing school and one more time as they were about to graduate. For the purpose of this research I decided to use 40, healthy first semester nursing students at West Coast University to evaluate, 20 males and 20 females. To avoid bias results, no specific race/ethnicity was required to participate, all individuals in this study were selected at random within the gender needed from an enrollment list provided by the Admissions Department. I decided not to filter participants by age or socioeconomic status to allow my results to reflect a variety of circumstances – as no nursing student is the same.

After gaining permission from West Coast University, I was able to contact students via e-mail to inform them of my research and extending to them an opportunity to be a part of a valuable study. A study that will impact the healthcare field entirely, improve patient care, and refine the nursing school process. After one week, I received forty acceptances from the nursing students. I divided the

participants into two groups of ten males and ten females, named Group A and Group B. Both groups were to be surveyed in the first semester of nursing school using the Empathy Scoring Survey (ESS) provided. At the top of the survey, students are required to write if they are a first-semester or a graduating nursing student. The ESS consists of ten statements, participants will have to reply with a number one through five; one being strongly disagree, two being disagree, three being neutral, four being agree, and five being strongly agree. Out of the possible fifty points, points were doubled for percentage purposes and answers were evaluated. Before receiving any knowledge of the importance of empathy or the general concept of patient care, I wanted to measure their understanding of it at that point in time. Participants were surveyed individually in an isolated room to avoid any distractions or answer influence from other students. From this point, the groups were divided and Group A was required to be involved in fiction literature courses throughout nursing school while Group B was not.

Group A underwent fiction literature courses that will strengthen their comprehension of empathy and its crucial effects on patient care. This course involved literary pieces written from a patient's perspective on their healthcare experiences, videos and audios on empathy involving patient care, and other helpful literary tools. Offering a variety of fiction literature exercises will target each and every learning style and guarantee the comprehension of the assignment. This course included a short quiz after each literary piece has been reviewed to measure progress, but did not count towards the student's GPA. The goal of this study was not to add more stress to nursing students, but to improve their apprehension of empathy so that they become successful, well-rounded nurses. Group B completed nursing school, like Group A, but excluding the fiction literature courses. As both groups approached graduation from nursing school, we have the participants complete the ESS one more time using the same strategy, individually tested in an isolated area/room, so there are no discrepancies. I gathered both scores collected from each group and analyzed the data. Due to the total of 100 points on the ESS, I decided to calculate averages in percentages and used an average total for the whole group to compare to the other.

## Results

Survey results were collected from the individuals participating in the nursing program at West Coast University. The control group was determined to be Group B, who were not involved in a fiction literature course in nursing school. The experimental group was Group A, who were enrolled in fiction literature courses throughout nursing school. The independent variable was the fiction literature course that would be implemented in the nursing school, and the dependent variables would be the amount of fiction literature read and the level of empathy measured in first semester and graduating nursing students.

In Figure I, the graph presents the first-semester nursing students and their average empathy score alongside those who are graduating. Group A scored a total of 69%, and Group B a total of 73%; both groups had somewhat of an understanding of empathy, but they do not fully comprehend the importance of it in the healthcare field. Both averages are fairly close to one another, so the benchmark is set to compare to their scores when the ESS is repeated. The same graph compares the vast increase of empathy comprehension in Group A. In Group B, there is an increase in empathy, but not as drastic as Group A's improvement. Group A had an average score of 97%, while Group B had an average of 81%.

In Figure II, Baptist Hospital conducted a Patient Empathy Survey Questionnaire on all of their patients to evaluate West Coast University's Nursing students and their impact on the hospital's patients. After the graduating nursing students' last clinical rotation on their site, Baptist conducted the survey, and sent West Coast University the results. As you can see, patients that were treated by Group A, scored a higher empathy percentage than those who were treated by Group B. Group A earned a score of 89% from their patients, and Group B had a score of 62%.

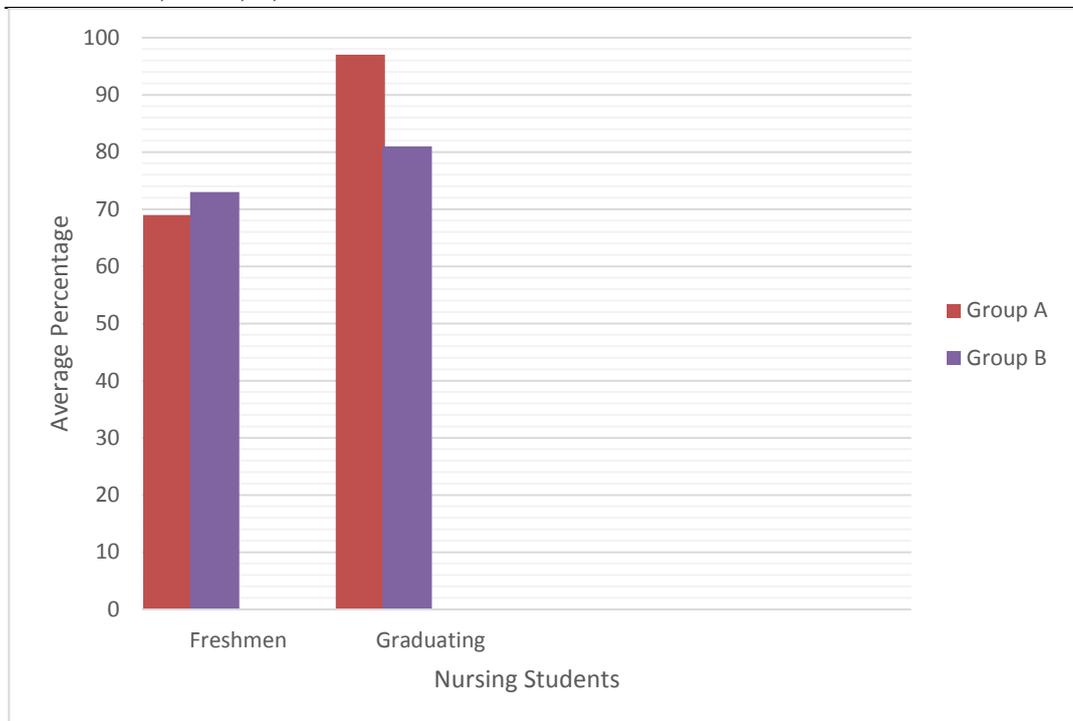


Figure I, Group A First Semester Nursing Students showed an average of 69% and Group B First Semester Nursing Students scored a 73% on the ESS. Group A Graduating Nursing Students showed an increased average of 97% and Group B Graduating Nursing Students scored an 81% on the ESS.

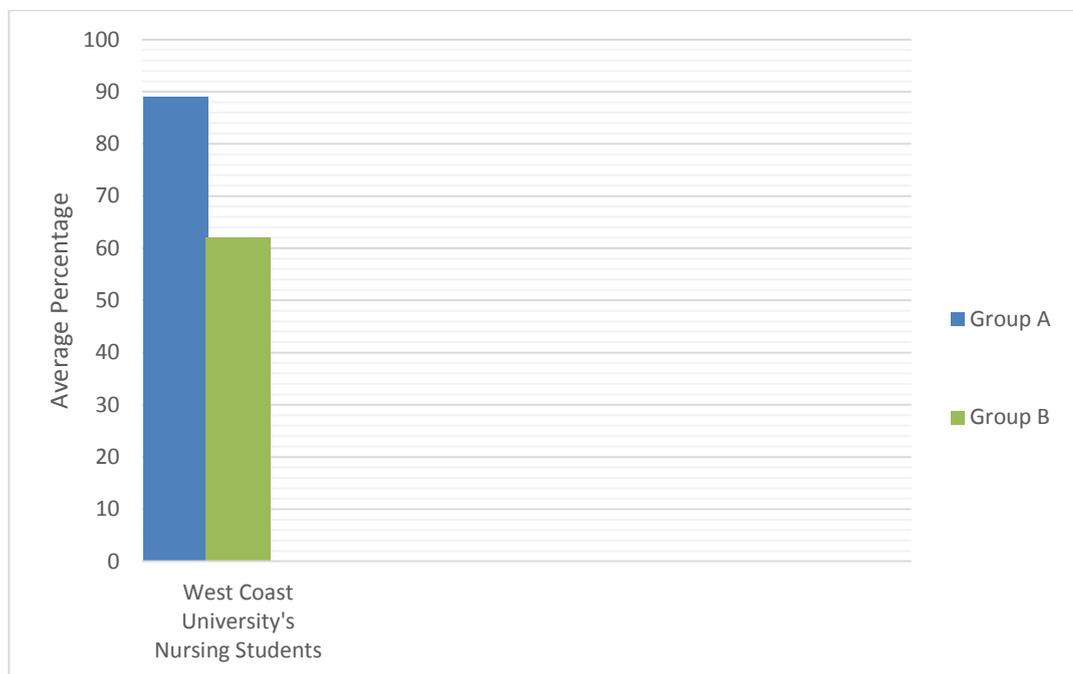


Figure II, the graph presents a Patient Empathy Survey Questionnaire that patients from the graduating nursing class' last clinical rotation at Baptist Hospital. Nursing students in Group A were graded an 89% on empathy from their patients, and Group B scored a 62%.

**Empathy Scoring Survey**

Nursing School Semester: \_\_\_\_\_ (First Semester, Graduating)

On a scale of 1-5, answer the questions below; **1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree**

<p>1. Health care providers' understanding of their patients' feelings and the feelings of their patients' families influences treatment outcomes.</p>	
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2. Patients feel better when their health care providers understand their feelings.	
3. It is easy for a healthcare provider to view things from patients' perspectives.	
4. Health care providers should allow themselves to be influenced by strong personal bonds between their patients and their family members.	
5. Health care providers' understanding of the emotional status of their patients, as well as that of their families is one important component of the health care provider - patient relationship.	
6. Even though people are different, it is easy to see things from patient's perspectives.	
7. Asking patients about what is happening in their lives is help in understanding their physical complaints.	
8. Attentiveness to patients' personal experiences influences treatment outcomes.	
9. Health care providers should try to stand in their patients' shoes when providing care to them.	
10. Patients value a health care provider's understanding of their feelings which is therapeutic in its own right.	

## Conclusions

As nursing students get closer to graduating, the main focus shifts entirely towards the NCLEX boards exam. Empathy is pushed aside, to make room for other information necessary to pass this life-changing test. Results have proven the decline in empathy as nursing students reach graduation, if not reinforced. With fiction literature courses throughout nursing school, students are able to comprehend and apply empathy to their patient's care. Empathy plays a crucial part in effective treatment and recuperation, and nursing students must learn to exercise this key element. By using fiction literary pieces, students are able to relate to and understand their patients better and vice versa. Research presents that those who take these courses have higher empathy scores than those who do not, and also rank higher percentages on Patient Empathy Survey Questionnaires. Taking this data into consideration, fiction literature should be a requirement throughout nursing school. Educators can use these literary tools to assist students in understanding a patient's signs and symptoms associated with their disease. Engendering empathy through literature can also be used outside of nursing school, as it is always kind to take other peoples' perspective into consideration.

Testing correlations between empathy and fiction literature leads to advancement in the scientific community by opening new ideas for more research. Now that there is a tested theory of the interconnection of these two actions, scientists are able to point out any hormonal or neural activity when both are stimulated. Measuring oxytocin levels in nursing students taking a fiction literature course revolved around empathy and using fMRIs to test neural activity. Once the science community is able to identify the specific hormone, the public can count on revolutionary enhancements to be produced. These research results affect medical science as well by improving quality of care and treatment plan. Using empathy to connect to patients establishes trust and increases patient understanding and treatment compliance.

Due to insufficient funds, research has been limited to using surveys. If a scientific lab were available, one could test for any specific hormone release during empathy-stimulating confrontations. The use of fMRI studies during fiction literature courses can also dictate specific neural activity signaling any connections with empathy. Utilizing these two approaches, studies can offer more concrete correlations between fiction literature and empathy. Further studies can also embrace the idea of nursing students losing/gaining empathy through fiction literature. To reveal valid conclusions, future research must include progress/regress of all participants every semester of nursing school. If

self-evaluation surveys were to be performed as my research has done, I would suggest implementing lie-detecting technology to estimate the legitimacy of the participants' answers.

Nursing is an art, and students should not forget that or what it implies. As before-mentioned, nursing students are increasingly focused on the scientific portion of nursing (as they should be) but they cannot forget the other empathetic portion that allows effective nurse-patient relationships. There has been recent concerns with the decline of empathy in nursing students, educators not enforcing fiction literature, and patients not feeling the connection with their healthcare provider (nurses, in this case). Issues like these may cause serious deterioration of the concept of nursing and healthcare. Without empathy, there is no connection between the nurse and patient causing ineffective treatment. If students are not taught to comprehend and exercise empathy through fiction literature, they will be unable to fully become the nurses they sought to be. To be a nurse, one must engender empathy and have the burning passion to help/understand those in need of medical attention. If educators fail to strengthen such quality, the medical field will suffer along with its medically needy.

Introducing the idea of fiction literature courses that induce empathy in nursing schools to the Board of Nursing would highly impact the medical field for the best. Raising the awareness of the empathy declination and its importance by providing research results and statistics to the Education Board can result in a change of requirements for nursing students. Implementing the fiction literature courses in nursing school will, indeed, increase empathetic skills in graduating nurses and patient satisfaction/wellness. The general public can provide feedback on experiences with nurses who have and those who have not shown empathy during their care and how it impacted them. Obtaining perspectives from patients, families, friends, and healthcare facilities will strengthen the seriousness of empathy. The government should enable the fiction literature courses in all nursing schools as a requirement, not only in nursing schools but in all schools in general. The development of empathy through fiction literature is important in social and cognitive situations.

Although there are no legislative actions regarding empathy or fiction literature requirements for nurses or nursing students, there should be some type of requirement for implementation of them. With the studies previously conducted and new findings, I propose the Board of Nursing to implement new requirements for certification. Nursing students should complete and excel in fiction literature courses that revolve around empathy in order to graduate nursing school and take the NCLEX exam. In addition to that, registered nurses should complete an Empathy Continuing Education Course at the time of their certification renewal. By making fiction literature a requirement, nursing students and renewing Registered Nurses are given the same opportunity to acquire empathy. Making empathy a requirement for nurses emphasizes its importance and its equality to the scientific aspect that must be learned and applied as well.

## References

- Atherton, I., & Kyle, R. (2014). How empathy skills can change nursing. *Nursing Standard* (2014+), 29(11), 24. doi:<http://dx.doi.org.westcoastuniversity.idm.oclc.org/10.7748/ns.29.11.24.s28>
- Chappell, S., & Faltis, C. (2007). Spanglish, bilingualism, culture and identity in latino children's literature. *Children's Literature in Education : An International Quarterly*, 38(4), 253-262. doi:10.1007/s10583-006-9035-z
- Crespi, B. J. (2016). Oxytocin, testosterone, and human social cognition. *Biological Reviews Of The Cambridge Philosophical Society*, 91(2), 390-408. doi:10.1111/brv.12175
- Cress, S., & Holm, D. (2000). Developing empathy through children's literature. *Education - Indianapolis-*, 120, 593-597.
- De Greck, M., Shi, Z., Wang, G., Zuo, X., Yang, X., Wang, X., Han, S. (2012). Culture modulates brain activity during empathy with anger. *NeuroImage*, 59(3), 2871-2882. doi:<http://dx.doi.org.westcoastuniversity.idm.oclc.org/10.1016/j.neuroimage.2011.09.052>
- Flood, D., & Farkas, C. (2011). Teaching madness and literature in a healthcare context: An enquiry into interdisciplinary education. *The Mental Health Review*, 16(3), 128-137. doi:<http://dx.doi.org.westcoastuniversity.idm.oclc.org/10.1108/13619321111178087>

- Gee, D. G., McEwen, S. C., Forsyth, J. K., Haut, K. M., Bearden, C. E., Addington, J., & ... Cannon, T. D. (2015). Reliability of an fMRI paradigm for emotional processing in a multisite longitudinal study. *Human Brain Mapping, 36*(7), 2558-2579. doi:10.1002/hbm.22791
- Greenawald, D. & Adams, T. (2008). School nurse book clubs: An innovative strategy for lifelong learning. *The Journal of School Nursing, 24*(2), 61-5. Retrieved from <https://search-proquest-com.westcoastuniversity.idm.oclc.org/docview/213131344?accountid=162765>
- Grigsby, K. & Megel, M. (1995). Caring experiences of nurse educators. *Journal of Nursing Education, 34*(9), 411-418. Retrieved from <https://search-proquest-com.westcoastuniversity.idm.oclc.org/docview/1026698299?accountid=162765>
- Heinke, M. S., & Louis, W. R. (2009). Cultural Background and Individualistic–Collectivistic Values in Relation to Similarity, Perspective Taking, and Empathy. *Journal Of Applied Social Psychology, 39*(11), 2570-2590. doi:10.1111/j.1559-1816.2009.00538.x
- Hysek, C. M., Schmid, Y., Simmler, L. D., Domes, G., Heinrichs, M., Eisenegger, C., & Liechti, M. E. (2014). MDMA enhances emotional empathy and prosocial behavior. *Social Cognitive And Affective Neuroscience, 9*(11), 1645-1652. doi:10.1093/scan/nst161
- Iannone, C. (2005). Reading Literature: Decline and Fall?. *Academic Questions, 18*(3), 6-15.
- Lachmann, F. (2015). Paul and i like to read good literature. *International Journal of Psychoanalytic Self Psychology, 10*(2), 142-147. doi:10.1080/15551024.2015.1005799
- Lane, A., Luminet, O., Rime, B., Gross, J.J., De Timary, P., & Moira, M. (2013). Oxytocin increases willingness to socially share one's emotions. *International Journal of Psychology : Journal International De Psychologie, 48*(4), 676-81. doi:10.1080/00207594.2012.677540
- Lawrence, E. J., Shaw, P., Giampietro, V. P., Surguladze, S., Brammer, M. J., & David, A. S. (2006). The role of 'shared representations' in social perception and empathy: An fMRI study. *NeuroImage, 29*(4), 1173-1184. doi:http://dx.doi.org.westcoastuniversity.idm.oclc.org/10.1016/j.neuroimage.2005.
- Leknes, S., Wessberg, J., Ellingsen, D., Chelnokova, O., Olausson, H., & Laeng, B. (2013). Oxytocin enhances pupil dilation and sensitivity to 'hidden' emotional expressions. *Social Cognitive And Affective Neuroscience, 8*(7), 741-749. doi:10.1093/scan/nss062
- Mar, R. A., Oatley, K., Djikic, M., & Mullin, J. (2011). Emotion and narrative fiction: Interactive influences before, during, and after reading. *Cognition & Emotion, 25*(5), 818-833. doi:10.1080/02699931.2010.515151
- McAllister, M., Lasater, K., Stone, T. E., & Levett-Jones, T. (2015). The reading room: Exploring the use of literature as a strategy for integrating threshold concepts into nursing curricula. *Nurse Education in Practice, 15*(6), 549-555. doi:http://dx.doi.org.westcoastuniversity.idm.oclc.org/10.1016/j.nepr.2015.07.012
- Nijhof, A. D., & Willems, R. M. (2015). Simulating fiction: Individual differences in literature comprehension revealed with fMRI. *PLoS One, 10*(2) doi:http://dx.doi.org.westcoastuniversity.idm.oclc.org/10.1371/journal.pone.0116
- Seibert, P. S., Stridh-Igo, P., & Zimmerman, C. G. (2002). A checklist to facilitate cultural awareness and sensitivity. *Journal of Medical Ethics, 28*(3), 143. doi:http://dx.doi.org.westcoastuniversity.idm.oclc.org/10.1136/jme.28.3.143
- Shapiro, J., Morrison, E., & Boker, J. (2004). Teaching empathy to first year medical students: Evaluation of an elective literature and medicine course. *Education for Health: Change in Learning & Practice, 17*(1), 73-84.
- Sheehan, Caryn A, DNP,A.P.R.N.-B.C., C.N.E., Perrin, Kathleen O, PhD,R.N., C.C.R.N., Potter, Mertie L, DNP,P.M.H.N.P.-B.C., P.M.H.C.N.S.-B.C., Kazanowski, Mary K, PhD,A.P.R.N.-B.C., C.H.P.N., & Bennett, Laurie A,M.S.N., R.N. (2013). Engendering empathy in baccalaureate nursing students. *International Journal of Caring Sciences, 6*(3), 456-464. Retrieved from <https://search-proquest-com.westcoastuniversity.idm.oclc.org/docview/1445366582?accountid=162765>
- Stepien, K., & Baernstein, A. (2006). Educating for empathy: A review. *Journal of General Internal Medicine, 21*(5), 524-530. doi:10.1111/j.1525-1497.2006.00443.x

- Tamir, D., Bricker, A., Dodell-Feder, D., & Mitchell, J. (2016). Reading fiction and reading minds: The role of simulation in the default network. *Social Cognitive and Affective Neuroscience, 11*(2), 215-24. doi:10.1093/scan/nsv114
- Viggiani, P. A., Charlesworth, L., Hutchison, E. D., & Faria, D. F. (2005). Utilization of contemporary literature in human behavior and social justice coursework. *Social Work Education, 24*(1), 57-96. doi:10.1080/0261547052000324991
- Zayas, L., & Torres, L. (2009). Culture and Masculinity: When Therapist and Patient are Latino Men. *Clinical Social Work Journal, 37*(4), 294-302. doi:10.1007/s10615-009-0232-2