

RESEARCH ARTICLE

Impact of empathic skills to social intelligence

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ABSTRACT

Introduction: Empathy, or being empathetic, is the meaning of the inner framework of others with the precision and the emotional component and understanding the other was a person, but never lost; as a state. Being empathic, also known as comprehending another's inner workings precisely and emotionally, and realizing that the other person was once a person but is now a state. Social intelligence is the ability to understand and manage people. The purpose of this research was to evaluate the knowledge that nursing students and students carry about empathic skills and social intelligence. Methods: This research is descriptive and quantitative. It is cross-sectional research. The Empathy quotient (EQ) questionnaire is used to measure empirical skills. The questionnaire Messi Methodology was used to measure social intelligence. The study involved a participant pool of 150 individuals. Results and discussion: From the findings through the correlation analysis, there has been a positive correlation between empathic skills and social intelligence with $r = 0.301$ and $p = 0.010$ *. The model explains 12% of variance and is significant with $p = 0.028$, where from the three explanatory factors only social intelligence with $p =$ is significant 0.007 **, while gender and age do not appear to be significant explanations for empathic skills. Research findings show that there is a link between empathic skills and social intelligence where our first hypothesis is confirmed. Conclusion: In conclusion, this study highlights the necessity to differentiate between different types of empathy while confirming the robust correlation between social intelligence and empathy. It refutes the notion that empathy varies with age by showing constant values throughout the age spectrum. Despite the fact that gender was not a significant effect, this highlights the significance of recognizing gender differences in empathic abilities.

Keywords: empathy; social intelligence; nursing students; pupils

1. Introduction

Empathy or being empathic is an understanding of the other's inner framework, with the correctness and emotional component and understanding "as if" the other was a person, but never lost "as" as a state^[1]. The psychological concept of empathy is complex and involves both affective and cognitive aspects. It entails having the ability to comprehend and share the emotions, ideas, and viewpoints of others; it is influenced by both inherent traits and current situational states, shaping the empathetic response^[2]. The term empathy originated more than a century ago, derived from the German word *Einfühlung*. Empathy in psychotherapy

ARTICLE INFO

Received: 16 October 2023 | Accepted: 30 October 2023 | Available online: 2 November 2023

CITATION

Hetemi B, Abazi K, Kryeziu B, et al. Impact of empathic skills to social intelligence. *Environment and Social Psychology* 2023; 8(3): 2176. doi: 10.54517/esp.v8i3.2176

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emerged in the 1950s. The person-centered approach described it as a temporary state where a health professional strives to understand a healthcare user's life without forming a personal bond with them^[3]. Empathy is the capacity to comprehend and share the emotions of others. It holds significant importance in various psychological approaches, such as psychodynamic, behavioral, and person-centered, as it forms the foundation for building a therapeutic relationship with healthcare users and fostering therapeutic transformation^[4]. The modern understanding of empathy involves three dimensions: affective, cognitive, and behavioral^[5-7]. Over time, its development has occurred in three distinct phases: until the late 1950s, cognitive aspects were prominent, from the 1960s, emphasis shifted to the affective dimension, and since the 1970s, empathy has been comprehensively defined with the inclusion of the behavioral component in the practice of healthcare professionals^[8]. Empathy includes moral aspects, emotional facets, cognitive elements, and behavioral dimension^[9]. According to research, is the ability to successfully communicate that one understands the viewpoint and experiences of a client. A relevant definition of empathy in the context of clinical nursing emphasizes how important it is to understand clients' discomfort and provide helpful interpersonal communication^[2]. It is crucial to point out the value of the nurse's active and emotionally involved involvement in the patient's situation, especially during difficult or obviously unfair circumstances, rather than emphasizing the outcome of empathy. This calls for an emphasis on the nurse's authentic approach.

In social interactions as well as other circumstances, empathy has several benefits. According to Rumble et al.,^[10], it is an effective method for resolving mistaken actions and eventually maintaining or even improving collaboration. This essential human quality can enhance reputation, lengthen life expectancy, and promote fruitful social relationships in addition to promoting good well-being^[11]. Furthermore, empathy shows that it can reduce antisocial, vindictive, discriminating, and unethical behavior in service environments, improving value-in-context experiences for service innovation consumers^[12]. In the medical field, empathy is essential to the doctor-patient connection and enhances health outcomes^[13]. Research indicates that interventions designed to augment empathy are efficacious and especially noteworthy in healthcare education and training, hence accentuating the significance of empathy in patient contentment and treatment compliance^[14,15]. The importance of developing empathy and empathetic communication skills in clinical settings is highlighted by this body of research, which will ultimately lead to better patient-physician relationships and improved healthcare outcomes connection to the patient's experiences as well as the methodical empathetic approach^[9].

Empathy includes moral aspects, emotional facets, cognitive elements, and behavioral dimension^[9]. According to research, is the ability to successfully communicate that one understands the viewpoint and experiences of a client. A relevant definition of empathy in the context of clinical nursing emphasizes how important it is to understand clients' discomfort and provide helpful interpersonal communication^[2]. It is crucial to point out the value of the nurse's active and emotionally involved involvement in the patient's situation, especially during difficult or obviously unfair circumstances, rather than emphasizing the outcome of empathy. This calls for an emphasis on the nurse's authentic connection to the patient's experiences as well as the methodical empathetic approach^[9].

Social intelligence in the other part, is "the ability to understand and manage people". Social intelligence skills can also be spiritual so social intelligence involves self-understanding and self-management^[16]. The understanding of social dynamics, memory of social experiences, interpretation of social cues, social creativity, and social knowledge are the five fundamental cognitive components that form the basis of the social intelligence model^[17]. Thorndike introduced the concept of "social intelligence (SI)" as an important facet of a Person's overall intelligence^[18]. In 1920, he defined social intelligence as the capacity to comprehend and effectively interact with people of all ages, demonstrating wisdom in human relationships. Social intelligence (SI) encompasses a range of abilities that facilitate the establishment and sustenance of positive relationships

in various social contexts. Essentially, it involves the capability to interact harmoniously with others. Boyatzis described social intelligence competency as the skill to identify, comprehend, and apply emotional information about others to achieve effective or exceptional performance^[19]. For an extensive exploration of SI, one can refer to the works of Goleman^[20]. Honeywell^[21] and Albrecht define social intelligence as the ability to effectively interact with others and navigate intricate social relationships and environments.

Advantages of social intelligence were explored in a study involving a sample of 1407 university students. The findings revealed a positive and statistically significant association between social intelligence and psychological well-being, with significant negative indirect effects on psychological distress, primarily mediated by positive relations with others^[22]. Furthermore, the study highlighted that middle-aged and recently retired individual exhibited higher levels of social intelligence compared to older adults, enabling them to effectively optimize their retirement for successful aging. In contrast, older adults with lower social intelligence encountered challenges in adapting to the various aspects of retirement. Consequently, there is a call for further research to develop tailored training programs aimed at enhancing social intelligence among the elderly population to facilitate their successful retirement^[23]

Regarding the dimension of empathy was placed on the emotive dimension starting in 1960, but since 1970, empathy has been defined in its whole, adding the behavioral component to the health care professionals' daily work^[8]. Empathy includes a number of important components. With the use of both verbal and non-verbal clues, the cognitive dimension entails comprehending the viewpoints of others and objectively appreciating their circumstances. Altruism is a socially directed conduct that aims to lessen the struggles, issues, and suffering of others. It is a component of the behavioral dimension. Despite their frequent interchangeability, sympathy, empathy, and compassion have different meanings. A sense of pity for individuals that one believes are unfairly suffering is a component of sympathy. While compassion is a complementary social emotion spurred on by seeing others suffer and feeling compelled to offer support, empathy is a more complex interpersonal construct that emphasizes awareness and intuition^[5,24-27]. According to study on social intelligence, Oral results from 2020 have demonstrated that social intelligence fully mediates the association between interpersonal rumination and interpersonal negative problem resolution in college students. Put another way, the addition of social intelligence as a mediatory variable in the structural equation model has reduced the predictability of interpersonal negative problem resolution or interpersonal rumination.

The literature shows that due to the lack of a commonly agreed-upon definition of empathy, measuring empathy presents a significant difficulty for researchers in disciplines like social psychology, individual differences, and clinical psychology. Numerous techniques, including self-report tools, behavioral observation techniques, and neuroscientific methodologies, have been used to solve this problem. The variety of measurement techniques points to the possible advantages of integrating different techniques to produce a thorough strategy for assessing empathy^[28]. Although some areas, such genetic healthcare, have gotten less attention, a range of empathy assessment techniques have been employed in the nursing research domain. These tools frequently involve numerous scales across diverse settings. The inconsistency in the use of tools emphasizes the necessity of a methodical assessment of empathy measures in nursing research to guarantee their appropriateness for therapeutic and educational objectives^[29]. Furthermore, Hogan^[30] created a 64-item self-report empathy measure, and other research like this of Allinson et al.^[31] have used the Empathy Quotient (EQ) to measure social intelligence. These developments demonstrate continuous efforts to enhance empathy measurement in a variety of contexts and disciplines.

Regarding the measurement of social intelligence numerous studies have been conducted on the evaluation of social intelligence, and the Tromsø Social Intelligence Scale is one comprehensive tool for doing so^[32]. Self-reported measures of social IQ have been used in a number of investigations, and their univariate

correlations have shown both discriminant and convergent validity. Multiple regression studies have highlighted the ability of these social measures to predict behavioral social effectiveness, and factor analyses have repeatedly demonstrated the existence of a distinct Social Intelligence component. This has consequences for future studies on social cognition and competence as well as for the creation of educational initiatives meant to improve social skills^[17]. Moreover, the MESI technique offers a different way to assess social intelligence^[4], which adds to the thorough investigation of this complex concept^[33].

A part of those challenges of empathy and social intelligence are evident. A complex web of interrelated factors poses major challenges to the development and maintenance of social intelligence and empathy. Given this, it can be difficult to retain appropriate levels of social intelligence and empathy. A study conducted by Neuma et al., in 2009 pointed out that in social childhood experiences have been shown to have a long-lasting impact on individual trait empathy.

There are a lot of other challenges that we are facing because of social factors, and advancement of technology. University of Michigan conducted a meta-analysis that analyzed and looked the path of empathy for a period of 30 years that showed that college students today lack the empathy skills compared to previous generations. A study done by authors Levett-Jones et al., in 2019 reported that developing empathic skills must be an ongoing process for them throughout their academic career and into their post-employment years. Fostering empathy and social intelligence is crucial going forward in light of these complex issues^[34]. People can help create a society that is more connected and empathic by accepting continuous development and realizing the complex interplay of factors that influence these traits.

The objective of this study was to assess the understanding of empathic skills and intelligence among nursing students and school pupils, taking into consideration the challenges and advantages associated with these crucial concepts.

By looking at the real-world applications of empathy and social intelligence in the context of nursing education, this study supports well-established theories and models in these areas. The study's emphasis on assessing nursing students' and students' understanding of intelligence and empathetic abilities is closely related to the theoretical underpinnings of these concepts. Furthermore, this study closes the gap between theoretical understanding and real-world application in the field of nursing education by investigating possible relationships between social intelligence and empathetic abilities through role-playing activities. By putting these ideas into a practical educational context, it seeks to add to the body of literature already in existence and highlight the importance of social intelligence and empathy in nursing practice and instruction. The results of seven studies supported the proposal that social intelligence was related to empathic skills in the US sample population. In Studies 1st and 2nd, the highest scores on social intelligence were related to higher outcomes for the empathic perspective, but were not related to results for emphatic fantasy, empathic disturbance, and personal concern, perhaps due to those three types of sensitivity are less adaptive than the empathic perspective. In Study 1st, the highest scores on social intelligence were related to self-monitoring results - that is, the ability (a) to understand the emotions and behaviors of others, (b) to understand environmental contexts, and to modify the self-presentation accordingly. In Study 3rd, the highest scores on social intelligence were related to higher scores on social skills. Using a paradigm of prisoner dilemma in Study 4, we found that participants with higher scores of emotional intelligences showed more collaboration with their partners. In Study 5th, participants with higher scores of emotional intelligences wanted more involvement and more love, but no more control, in relationships. In Study 6th, the highest scores of social intelligences were associated with higher scores for marital satisfaction. In Study 7, participants anticipated more satisfaction in relationships with future high-social social partners^[35]. Mayer and Salovey^[36] suggest that social intelligence (as estimated in some measure of performance) is associated with empathy and also the findings suggest that social intelligence

is linked to some important ways with empathic skills. A study reveals social intelligence as a factor influencing empathy and as part of the communicative-reflective component of students' psychological readiness for volunteer work. This includes possessing sufficient communicative competence, which is the ability to understand the perspectives of others and successfully express one's own opinions. It also entails being able to recognize both verbal and nonverbal clues during communication^[37].

With regard to gender, female nursing students were appearing more sensitive compared to the male gender^[38]. They seem to be more empathic than males^[39,40]. Also the theory that women are more vulnerable to the condition of the other person is accepted and confirmed in the literature^[24].

In an interesting way in the research of the American Association of Colleges (AAMC) in 2002, there was shown to be a discernible decline in empathy during the third year of medical school. It's interesting to note that during a time when empathy is vitally needed, the curriculum is shifting to emphasize patient-care activities at the same time that empathy is declining^[24]. In a large cross-sectional study involving Mexican medical students, Alcorta and a team of researchers conducted a careful and comprehensive study using a special Mexican iteration of the JSPE designed specifically for that cultural environment. Interestingly, their findings showed no noticeable differences in the average grades of medical students as they progressed through different years of their medical education journey^[3,41]. A recognized scholar in the field, Marcus initiated an extensive study of empathy, humanity, and professionalism in medical education. His careful analysis revealed a convincing revelation: students characterized by reticence and aloofness preferred the technological aspects over the human dimension. In addition, they added a clear sense of belonging to a respected and privileged cohort, which unfortunately contributed to a marked decline in empathy during their medical education^[42]. Although studies on the effectiveness of educational interventions to increase sensitivity provide mixed results, most of these studies emphasize the positive effects of empathy training. For example, a study by Feighny and colleagues, who are known for their expertise in this field, provided remarkable evidence that early school-based training had a clear positive effect on students' empathic behavior while also increasing their communication skills. critical skills in healthcare. However, there are studies that, despite their rigorous methodology, do not show significant changes in sensitivity^[24]. For example, a study by respected researchers Zeldow and Daugherty showed that there was no significant change in sensitivity during high school as measured by IRI25 subscale scores. Similarly, Markham's detailed investigation and subsequent report revealed that despite the incorporation of a dedicated course addressing behavioral elements within the context of medical education, there was no discernible alteration in the students' overall orientation towards perceiving the patient as a unique individual, underscoring the persistent challenge of instilling a more person-centered approach in medical training^[43]. In addition, the dynamic interplay between social intelligence and empathic prowess underwent scrupulous examination in an additional seven empirical studies, each characterized by its unique methodological approach and theoretical framework^[44].

2. Materials and methods

This research is descriptive and quantitative. Descriptive data are the review of preliminary literature on empathic skills and social intelligence, while quantitative data includes the measurement of empathic skills and social intelligence by means of two valid questionnaires. It is cross-sectional research.

The sample included 150 participants, 75 students of Heimerer College and 75 students of the Center of Competence-Ferizaj, of both sexes. Participants were selected randomly.

The Empathy quotient (EQ) questionnaire was used to measure empathy skills by Simon Baron-Cohen from the University of Cambridge. The questionnaire contains 60 questions^[31].

The questionnaire “Messi Methodology” by the authors Frankovský and Birknerová was used for the measurement of social intelligence. The questionnaire contains 21 questions on a scale from 1 to 5 points^[4].

The reliability of the questionnaires is as followed: EQ questionnaire had 60 questions and the Cronbach alpha showed a good reliability 0.764, also Social Intelligence questionnaire has acceptable reliability with Cronbach alpha 0.630.

Prior to distributing the questionnaires, formal approval was obtained from two relevant institutions. After that, plans were made to arrange for dates and meetings with nursing students. The first contact was with their teachers and then using the snowball sampling strategy were selected the pupils who participated. This sample type involves asking current participants for recommendations in order to find study subjects that might be a good fit^[45]. All participants were provided with extensive details on the aims and methods of the research. Before any data was collected, each participant had to sign a permission form that made it clear they would remain anonymous for the duration of the study. Regarding the sample calculation was done through the confidence level with 95%.

The data were analyzed through statistical platform for social sciences (SPSS). The analyses performed for this study were; descriptive data analyses which was done to get the overview of the demographic data, T-test analysis to check on differences between the groups, Regression analysis to see the impact of empathic skills and correlation analysis to test the relationship between two groups.

Our study respected all ethical standards based on Helsinki declaration, also our team get an approval from Heimerer college ethical committee.

Research manuscripts reporting large datasets that are deposited in a publicly available database should specify where the data have been deposited and provide the relevant accession numbers. If the accession numbers have not yet been obtained at the time of submission, please state that they will be provided during review. They must be provided prior to publication.

Interventionary studies involving animals or humans, and other studies that re-quire ethical approval, must list the authority that provided approval and the corresponding ethical approval code.

3. Results

Table 1. *T*-test analysis for differences between student and pupils’ groups in relation to empathic skills and social intelligence.

Scale	Students		Pupils		Sh.I	<i>t</i> -test	sig.
	M	DS	M	DS			
Manipulation	14.1	5.8	13.8	4.8	120	0.114	0.799
Empathy	21.1	6.9	21.7	4.6	120	0.538	0.592
Social irritation	15.6	4.9	16.3	5.4	118	0.622	0.535
Social intelligence	51.1	13.9	51.6	9.5	100	0.223	0.824
Empathic skills	133.3	21.9	131.6	16.4	91	0.392	0.696

In **Table 1**, through *t*-test analysis there have been no statistically significant differences between students and pupils in relation to empathic skills and social intelligence, including social intelligence dimensions such as manipulation, empathy, and social excitement. In the terms of means regarding manipulation it seems to be more expressed among the students with a standard deviation of 5.8. By the other part regarding the empathy and social irritation dimension it seems to be more express among pupils with a standard deviation of 4.6 for empathy and 5.4 for social irritation.

Table 2. *T*-test, Gender differences in relation to empathic skills and social intelligence.

Scale	F		M		Sh.l	<i>t</i> -test	sig.
	M	SD	M	DS			
Manipulation	14	5.4	56	5.05	114	0.347	0.729
Empathy	20.8	4.7	21.6	6.9	114	0.153	0.442
Social irritation	16.4	4.6	15.5	5.8	113	0.802	0.424
Social intelligence	51.3	10.9	51	10.9	95	0.149	0.882
Empathic skills	133.6	19.3	130.3	17.7	89	0.860	0.392

In **Table 2**, *t*-test analysis has shown that there are no significant differences between male and female in relation to empathic skills and social intelligence, including dimensions that are measured through a social intelligence questionnaire such as manipulation, empathy and social excitement. However, if we look at the means of the dimensions, we can say that manipulation and empathy is a little more expressed among males with a standard deviation of 5.05 for the manipulation dimension and 6.9 standard deviation for empathy dimension. By the other side social irritation is a little more expressed among females with a standard deviation of 5.8.

Table 3. Regression analysis—Explanation of empathy through social intelligence, gender and age.

Model	B	Std. Error	Beta	t	Sig.
Social intelligence	0.517	0.186	0.316	2.775	0.007
Groups	-3.651	4.517	-0.093	-0.808	0.422
Gender	0.020	0.013	0.170	1.483	0.143

R = 12% variance Model *p* = 0.028*.

In **Table 3**, through linear regression analysis it turns out to be statistically. Significant model where the dependent variable was empathic abilities and as predictor or explanatory variables was social intelligence with its dimensions, age and gender. The model explains 12% of the variance and is significant with *p* = .028 where from the three explanatory factors only social intelligence is significant with *p* = 0.007 **, while gender and age do not appear to be significant explanatory for empathic abilities.

Table 4. Correlation analysis between empathic skills and social intelligence.

Correlation	A	B
A. Social intelligence	-	-
B. Empathic skills	0.301*	-

In **Table 4**: through correlation analysis, there has been a positive correlation between empathic and social intelligence with *r* = 0.301 and *p* = 0.010 *. This implies that those who possess a higher degree of empathic intelligence also typically display a higher degree of social intelligence.

4. Discussion

The research findings affirm our initial hypothesis, demonstrating a clear correlation between empathic skills and social intelligence. Nicola S. et al undertook a comprehensive examination of this relationship across seven distinct studies. Across the board, the results from these seven studies provided consistent support for the proposition that social intelligence is closely tied to empathic skills within the US sample population. In the first and second studies, it was observed that individuals with the highest scores in social intelligence

exhibited greater proficiency in adopting an empathic perspective. However, this correlation was not evident in the case of empathic fantasy, empathic distress, and personal concern. It is postulated that these three forms of empathy might be less adaptable or universally applicable compared to the empathic perspective, hence explaining this observed distinction in outcomes. This highlights the nuanced nature of empathy and its various dimensions, emphasizing the significance of further investigation into their contextual relevance^[44]. The existence of this correlation was further corroborated through a study conducted among Finnish schoolchildren^[46]. Moreover, Mayer and Salovey posit that social intelligence, gauged through various performance metrics, demonstrates an association with empathy^[36]. These collective findings strongly indicate that there exists a noteworthy interconnection between social intelligence and empathic skills, manifesting in several crucial dimensions. This implies that proficiency in social intelligence may potentially contribute significantly to the development and expression of empathic abilities.

Based on the outcomes derived from our research endeavor, it has been established that there exists no statistically significant disparity when comparing different age groups. This implies that our second hypothesis, which posited that individuals aged 19 and above would exhibit greater levels of empathy compared to those under 19, has not been substantiated. A cross-sectional study focusing on medical students in Mexico, as conducted by Alcorta et al., employed a Mexican-adapted version of the Jefferson Scale of Physician Empathy (JSPE). Interestingly, this study did not yield any substantial fluctuations in the median empathy scores across various academic years within the medical curriculum^[47]. In contrast, it is worth noting that there was a positive correlation found between age and empathy levels among Chinese students^[48]. This finding introduces an intriguing dimension to the discussion, suggesting potential cultural or contextual influences on the relationship between age and empathic tendencies.

Regarding the distinctions between students and pupils with regard to social intelligence and empathic skills, including social intelligence components like manipulation, empathy, and social excitement where there was no difference between them, this is another significant discovery. Although research findings on the effects of education to promote empathy are inconclusive, most of these studies result positive from empathetic training^[42]. For example, a study by Feighny and his colleagues found that training in the early years of the medical school could increase the empathy of behavior among students^[49]. In a qualitative study, Wilkes et al reported an increase in empathy of medical students when they had experience in hospitalization. There are other studies that do not show any significant change^[50]. For example, Zeldow and Daugherty^[43] found no change in empathic skills during high school medical school and Markham reported that a course on behavior at the medical school did not change orientation towards the patient as a person^[51]. In another study empathy scores drop as the number of college years increases^[52]. In other part according to different studies empathy and emotional intelligence are qualities that people develop throughout their school careers^[53]. According to a study done among medical students, the length of their education has an adverse relationship with how empathic they are^[54]. Another study discovered that emotional intelligence scores rise as students advance through university, with fourth-year nursing students having the highest results. A study discovered that individuals' empathy scores improved the longer they had attended university^[55]. Moreover, a study indicated that the medical curriculum has an increased focus on developing empathy as the educational years progress and this is why students understand the importance of empathy in the patient-physician relationship. Finally, a study investigated that tendency towards higher levels of empathy in senior year medical students is explained through clinical training and communication skills^[56]. Unstable results may be due to or not the specifics for measuring empathy used in different studies to assess the effectiveness of educational programs or a lack of clarity or specificity in educational objectives.

In our study gender also was shown not significant in relationship to their empathic skills. This result is

inconsistent with other studies that found that women have much higher sensitivity scores compared to males like the research with nursing students in Greece^[38] and China that shows that women exhibit empathic skills more easily than men^[48]. Also, in another study female healthcare students scored higher levels of empathy in comparison with male students. It was shown a significant relation between gender and empathy levels^[57]. A study concluded that there is more activation in brain regions of female participants containing mirror neurons and anatomical differences while comparing with male participants that participated in the study. From this study it was also shown that women had more mimicry compared to men. In comparison with men, women reported two main differences, they have and produce more facial mimicry, so they have greater levels of brain activation regions that happen during the empathic process^[58]. Another study showed that women are better at recognizing emotions because they have more mimicry or facial expression^[59] women are better at recognizing emotions because they have more mimicry or facial expression. The others support these findings conducts that woman may be more reliant on facial feedback to recognize emotions^[60]. A study done by Bertakis et al. shows that those females are more receptive to emotional signals compared to males^[61]. On the flip side, our findings align with Deng et al.'s research, indicating that both male and female nursing students generally exhibit comparable levels of empathy and problem-solving abilities^[62].

5. Conclusion

In conclusion, this study provides strong support for the original theory that social intelligence and empathetic abilities are closely related. The study is noteworthy because it highlights the need of differentiating between subtleties in different forms of empathy. It also clarifies how social intelligence is specifically associated with particular aspects of empathy, which enhances our comprehension of these intricate psychological concepts.

Furthermore, this study disproves the notion that empathy varies with age by showing that there are no appreciable differences in empathy abilities among age groups. This discovery affects how we see and handle the development of empathy in a variety of age groups. Even though gender was not a significant component in this study, the research emphasizes the significance of recognizing gender disparities in empathic skills. These findings highlight the need for greater research and customized interventions to improve empathy in a range of demographics, with the ultimate goal of creating a society that is both socially conscious and empathic. Also, the findings will ultimately contribute to a more socially conscious and empathetic society by having an impact on the creation of empathy training and educational initiatives for all age groups and genders including the professional fields

Author contributions

Conceptualization, BH, VH and BT; methodology, FG; software, FG; validation, FG and KA; formal analysis, FG; investigation, BT; resources, BH; data curation, BT; writing—original draft preparation, BT, VH and BK; writing—review and editing, AH; visualization, BK; supervision, BT and BH; project administration, AH; funding acquisition, BH. All authors have read and agreed to the published version of the manuscript.

Conflict of interest

The authors declare no conflict of interest.

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