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"An Exploration of Empathy Among Undergraduate Occupational Therapy Students at Arabic Universities"

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Thesis Approval

An Exploration of Empathy Among Undergraduate Occupational Therapy Students at Arabic Universities

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Declaration

I declare that the contents of the thesis are the result of my effort and this thesis as a whole, or part of it, has not previously been submitted for a degree or research at any other educational or research institution.

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Abstract

Introduction**:** Empathy plays a vital role in occupational therapy. It enables occupational therapists (OTs) to establish a client-centered understanding of their patients and pursue meaningful occupational and therapeutic goals tailored to each individual. However, the assumption that occupational therapy students naturally possess the empathic capacity required for effective client-centered practice is unfounded. Hence, it becomes imperative to cultivate and instill empathy among undergraduate OT students before the commencement of clinical work to safeguard against potential impediments in their professional development. Despite the importance of empathy in occupational therapy, there is a conspicuous lack of evidence concerning empathy and attitudes toward patients among undergraduate OT students in Arabic Universities. Thus, this study aimed to explore the level of empathy and identify associated factors among undergraduate OT students at Arabic Universities.

Method**:** An observational cross-sectional study was conducted, with a sample of 219 undergraduate occupational therapy students from various Arabic Universities. The level of empathy was assessed using an electronic questionnaire that included the Jefferson Scale of Physician Empathy-Health Profession Students' Version (JSPE-HPS), the Interpersonal Reactivity Index (IRI), and a short set of demographic questions.

Results: A satisfactory level of empathy was found on all dimensions of the IRI 94.75 (11.62). The JSPE-HPS-S 109 (102-114). The study's findings revealed that females exhibited more empathy than males. Although the JSPE-HPS-S scores showed no

significant gender differences with mean scores of 110 (102-115) and 104(97-112) for females and males respectively, the IRI scores indicated that females had significantly higher empathy levels than males mean scores of 96.24(11.20) and 89.57(11.70) for females and males, respectively (p=00.0).

Conclusion: Advancing the understanding of empathy in occupational therapy education is crucial. This progress will help cultivate empathetic and culturally competent occupational therapy practitioners, ultimately enhancing the quality of care and overall well-being of diverse populations.

Keywords**:** education, Empathy, Interpersonal Reactivity Index, Jefferson Scale of Physician Empathy, occupational therapy, students, undergraduate

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List of Abbreviations

Full name	Abbreviation
Jefferson Scale of Physician Empathy-Health Profession Students' Version	(JSPE-HPS)
Interpersonal Reactivity Index	(IRI)

Chapter 1 Introduction and Background

1.1 Introduction

This master's thesis comprehensively examines empathy levels among undergraduate Arabic occupational therapy students in Arabic universities.

Empathy is a core factor in establishing the clinical relationship between clients and healthcare providers by considering their points of view, experiences, thoughts, and needs. The ability of healthcare providers to relate to their clients is essential because empathy plays a significant role in clinical interaction through spontaneous behaviors, such as non-verbal communication, verbal communication, facial expressions, and body posture. These interactions are influenced by positive attitudes, behaviors, and motivation toward clients, leading to an increase in the quality of life and satisfaction in clients and subsequently reducing their suffering, distress, anxiety, and depression. Empathy also has a crucial role in clinical education and development, especially in professional education that focuses on an individual's interpersonal functioning. This is essential because clinical interaction has increased emotional intonation and become dependent on teamwork between healthcare providers, which leads to positive outcomes for clients.

1.2 Background

Empathy is a multifaceted concept that involves comprehending and communicating the emotions and viewpoints of others (Looi, 2008). Empathy is understanding a patient's experiences without necessarily experiencing the same emotions (Moudatsou et al., 2020).

Recognized as a pivotal component of effective communication and therapeutic relationships, empathy plays a vital role in achieving favorable patient care outcomes. Research suggests that empathetic healthcare practices can increase patient satisfaction, greater patient involvement, enhance treatment adherence, and reduce patient litigation (Williams et al., 2014)

Empathy is considered an essential aspect of professional behavior in occupational therapy, emphasizing sensitivity, adaptability, and patient attentiveness (Jamieson et al., 2006). Client-centered practice, a cornerstone of occupational therapy, acknowledges that clients bring their values, abilities, experiences, and limitations to the therapeutic relationship. Empathy encourages therapists to actively listen to clients and collaborate with them to identify and achieve personalized goals (Jamieson et al., 2006). With their expertise in occupation and design processes, occupational therapists empower clients to pursue meaningful activities and envision potential objectives, along with their associated benefits and risks (Bailey & Cohn, 2001).

Individuals exhibit varying levels of empathy, which can be influenced by factors such as profession, age, gender, and geographical region (Boyle et al., 2009; Boyle & Earl, 2013; Boyle et al., 2014; Brown et al., 2010; Williams et al. 2014; Fields et al., 2011; Serrada et al., 2022). Studies indicate that empathy tends to remain relatively stable among healthcare professional students, though targeted training interventions have successfully enhanced empathy (Bas-Sarmiento et al., 2017; Wündrich et al., 2017). For instance, workshops in occupational therapy that use DVD stimulation have demonstrated increased self-reported

empathy levels (Williams et al., 2015). While empathy is believed to have its foundation in early childhood (Eisenberg et al., 2002), it cannot be presumed that all occupational therapy students possess the requisite empathetic capacity for effective client-centred practice. As a result, it becomes imperative for the profession to elucidate how therapists can develop this essential quality (Jamieson et al., 2016).

Understanding the level of empathy among allied health professional students is an essential initial step in fostering the development of this crucial attribute within student cohorts (Boyle et al., 2009).

Limited research has been undertaken to assess the level of empathy in occupational therapy students, with some studies conducted by Brown et al. (2010) Serrada et al. (2022), and De Klerk et al. (2023). In the past, Christiansen conducted an initial study employing the Hogan Empathy Scale to evaluate empathic abilities in occupational therapy students. The study revealed that healthcare professionals possessed inherent skills that contributed to and strengthened therapeutic partnerships (Christiansen, 1977). Wise and Page focused on evaluating the emotional facet of empathy and utilized the Affective Sensitivity Scale with first-year occupational therapy students. Their study postulated that introducing a formative approach to empathic skills might have positively impacted students' empathy levels (Wise & Page, 1980).

While several studies have been conducted worldwide to explore empathy among occupational therapy students, such investigations have been scarce in the Arab world. Findings from research conducted in other countries may not accurately represent

occupational therapy students in the Arab world due to regional variations in cultural values, beliefs, and differences in education systems.

Hence, the present study aimed to investigate and determine the level of empathy among undergraduate occupational therapy students in Arabic Universities. This investigation utilized the Jefferson Scale of Physician Empathy-Health Profession Students' version (JSPE-HPS) and the Interpersonal Reactivity Index (IRI) to assess empathy levels among the participants.

1.3 Research Questions

. The specific research questions are as follows:

1. What is the level of empathy among undergraduate occupational therapy students at Arabic universities?

2. What factors are associated with empathy levels in this group of students?

By addressing these research questions, the study aims to provide a comprehensive understanding of empathy in the context of occupational therapy education in the Arab world. The findings will contribute to promoting and enhancing empathetic skills among future occupational therapists, ultimately improving the quality of care provided to patients and clients.

1.4 Research Objectives

The primary objective of this study is to investigate the level of empathy among undergraduate occupational therapy students at Arabic universities and identify the factors associated with their empathetic abilities.

1.5 Research Significance

The development of empathetic skills holds a vital place in the education of occupational therapy students, and it demands careful nurturing. It is essential to strengthen students' personal and social competencies, enabling them to establish effective communication with their patients. Hands-on educational programs can play a central role in achieving this goal.

This study aims to present a comprehensive picture of the current level of empathy among undergraduate occupational therapy students at Arabic universities. If the findings reveal a low level of empathy among these students, it becomes imperative to establish educational approaches that specifically focus on empathy development during teaching.

By addressing this critical priority, educational institutions can better equip future occupational therapists to provide compassionate and patient-centred care, improving therapeutic outcomes and overall patient well-being. Empathy, as a core aspect of occupational therapy practice, is a skill that can significantly enhance the quality of the therapeutic relationship and contribute to the overall success of the profession.

Chapter 2 Literature Review

2.1 Background

This chapter provides a general overview of occupational therapy and the education of occupational therapists in Arab countries. It elucidates empathy's concept, importance, and components, emphasizing its critical role in healthcare and occupational therapy contexts. The literature review specifically addresses the levels of empathy among occupational therapy students and explores various factors that influence these empathy levels.

2.2 An overview of occupational therapy

Occupational therapy (OT) is a client-centered health profession promoting health and well-being through meaningful occupation. It enables individuals to participate in daily activities by enhancing their abilities or modifying their environments (American Occupational Therapy Association, 2021). OT adopts a holistic perspective, considering clients' physical, emotional, social, and cognitive aspects, and emphasizes evidence-based practice to ensure effective interventions (Hinojosa & Kramer, 2014). Key areas of intervention include activities of daily living (ADLs), instrumental activities of daily living (IADLs), work and productivity, leisure and play, and social participation (Christiansen & Baum, 1997). OT serves diverse populations, including children, adults, the elderly, and special populations such as those with mental health issues, in various settings such as hospitals, schools, community centers, homes, and workplaces (Crepeau et al., 2009). Occupational therapists

play critical roles in assessment, planning, intervention, evaluation, education, and advocacy to support clients in leading independent and fulfilling lives (Fossey & Scanlan, 2014).

2.3 Education of occupational therapists in Arab countries

The education of occupational therapists in Arab countries is an evolving field, reflecting both the global standards of the profession and the unique cultural and healthcare needs. Occupational therapy (OT) education in these countries is relatively new compared to Western nations, with programs varying in their stages of development, curriculum structure, and accreditation standards (Malkawi,2017). OT programs in Arab countries are generally designed to meet international educational standards, such as those set by the World Federation of Occupational Therapists (WFOT). The curriculum typically includes foundational sciences, OT theory and practice, clinical reasoning, and fieldwork. (WFOT,2016). Universities in countries like Palestine, Saudi Arabia, Jordan, Lebanon, and Egypt have established OT programs accredited by national health and education authorities and, in some cases, international bodies. Most OT programs in the Arab world offer undergraduate degrees, with many institutions also providing postgraduate opportunities. The undergraduate programs usually span four to five years, combining classroom instruction with clinical placements to ensure students gain practical experience. These placements occur in various settings, including hospitals, rehabilitation centers, schools, and community-based organizations.

One of the primary challenges in OT education in Arab countries is the limited number of programs and trained faculty members. Additionally, there is often a lack of awareness and understanding of the OT profession among the public and within the healthcare system (Al-Heizan et al., 2023).

Education programs in the region emphasize the importance of cultural competence, preparing therapists to work effectively within the sociocultural context of Arab countries. This includes understanding the cultural norms, values, and specific needs of the population, which is crucial for providing effective and respectful care (Malkawi,2021).

Continuing education is becoming increasingly important in the Arab world, with professional bodies and universities offering workshops, seminars, and advanced courses to help practitioners stay current with advancements in the field (Sarsak,2021). This commitment to lifelong learning ensures that occupational therapists can continually enhance their skills and knowledge.

The future of OT education in Arab countries looks promising, with ongoing efforts to expand and improve educational programs. Initiatives include increasing the number of accredited programs, enhancing faculty development, fostering research, and integrating technology into education and practice (Malkawi,2021). These efforts aim to elevate the standard of OT education and practice, ultimately improving the quality of care provided to individuals and communities.

2.4 Empathy: Concept and importance

Empathy is multifaceted, encompassing moral, cognitive, emotional, and behavioral aspects. In healthcare, clinical empathy involves understanding the patient's situation, emotions, and values and effectively communicating this understanding to the patient while therapeutically providing support (Mercer & Reynolds, 2002).

Empathy has been categorized as either cognitive, emotional, or a combination. Some scholars emphasize that empathy is primarily a cognitive trait involving understanding rather than feeling the patient's experiences, concerns, and perspectives and the desire to offer help (Hojat, 2016). Empathy in healthcare is defined as comprehending a patient's experience without directly experiencing it oneself (Moudatsou et al., 2020). Consequently, empathy is considered crucial in healthcare settings, recognized as a fundamental component of effective communication, building rapport with patients, and achieving optimal patient care outcomes. It is believed to enhance patient satisfaction, increase patient engagement and motivation, improve treatment adherence, and reduce patient dissatisfaction or legal actions (Williams et al., 2014).

2.4.1 Components of Empathy

The main components of empathy include cognitive empathy, affective empathy, and empathic concern. Cognitive empathy, also known as perspective-taking, involves the ability to understand and intellectually grasp another person's mental state or viewpoint

(Decety & Jackson, 2004). Affective empathy refers to the capacity to vicariously experience and share the emotional states of others, often leading to emotional resonance or emotion contagion (Shamay-Tsoory, 2011). Empathic concern, or compassionate empathy, entails feelings of care and concern for others, prompting prosocial behavior and the desire to alleviate another's distress (Batson et al., 1987). Together, these components enable individuals to connect with others, comprehend their experiences, and respond appropriately, making empathy a critical skill in various professional and personal contexts (Eisenberg et al., 2010).

2.4.2 The Cultural Nuances of Empathy: From Ego-logical to Eco-logical Perspectives

Empathy, the ability to understand and share the feelings of others, is not universally experienced or expressed the same way across different cultures. The idea that "one size does not fit all" in empathy underscores the necessity of recognizing cultural variability in empathetic responses. Traditionally, empathy has been understood in an ego-logical sense, focusing on individual experiences and personal identification with others' emotions. However, this perspective is limited when applied across diverse cultural contexts. A more comprehensive approach is the eco-logical perspective of empathy, which emphasizes relational and environmental interconnectedness. This means understanding empathy as a collective experience influenced by social interactions, cultural norms, and communal relationships. Shifting from an ego-logical to an eco-logical understanding of empathy

allows for more meaningful and culturally sensitive empathetic engagements, fostering stronger connections and better communication across different cultural backgrounds (Eichbaum et al., 2022)

2.4.3 Empathy and Healthcare Professional

Empathy is a crucial attribute for healthcare professionals, profoundly impacting patient care and overall healthcare outcomes. It encompasses the ability to understand and share the feelings of others, thereby fostering a compassionate and supportive environment. Empathy in healthcare professionals is associated with numerous benefits, including enhanced patient satisfaction, improved patient compliance with treatment plans, and better clinical outcomes (Hojat et al., 2011)

Empathic healthcare providers can effectively communicate with patients, ensuring that they feel heard, understood, and respected. This communication fosters trust and strengthens the therapeutic alliance, which is essential for effective treatment and patient adherence to medical advice (Derksen et al., 2013). Moreover, empathy can reduce patient anxiety and distress, creating a more positive healthcare experience and potentially accelerating recovery (Halpern, 2003).

Empathy also benefits healthcare professionals by enhancing their job satisfaction and reducing burnout. Understanding and addressing the emotional needs of patients can lead to more meaningful interactions and a sense of fulfillment in their professional roles.

Furthermore, training programs that focus on developing empathy have been shown to improve healthcare providers' emotional intelligence and resilience, further contributing to their well-being and professional longevity (Thirioux et al., 2016Wilkinson et al., 2017).

Empathy is closely tied to the therapeutic relationship's core goals, which include establishing supportive interpersonal communication to understand the patient's perspectives and needs, empowering the patient to cope effectively with their environment, and resolving the patient's difficulties (Mercer & Reynolds, 2002).

2.4.4 Empathy and Occupational Therapy

Empathy is a fundamental component in occupational therapy, significantly enhancing the therapeutic process and outcomes. Occupational therapists rely on empathy to build strong therapeutic relationships, understand clients' needs and perspectives, and tailor interventions accordingly. Empathy enables therapists to perceive and comprehend the emotional, psychological, and social challenges faced by clients, facilitating more personalized and effective care (Taylor, 2017)

Through empathic interactions, occupational therapists can create a supportive and trusting environment, crucial for motivating clients and fostering active participation in the therapeutic process (Jamieson et al., 2006). Empathy also aids in addressing clients' emotional responses to their conditions, promoting mental well-being alongside physical rehabilitation. This holistic approach is integral to occupational therapy, which aims not

only to restore function but also to enhance overall quality of life (Bailey & Cohn, 2001, Jamieson et al., 2006).

Moreover, empathy in occupational therapy extends to understanding the broader context of a client's life, including their social and cultural background. This comprehensive understanding allows therapists to develop interventions that are culturally sensitive and relevant, further improving the effectiveness of therapy (Moudatsou et al., 2020)

The development of empathy in occupational therapists is often emphasized in educational programs, highlighting its importance in clinical practice. Training in empathy helps therapists manage their emotional responses, maintain professional boundaries, and deliver compassionate care without experiencing burnout (Bas-Sarmiento et al., 2017; Wündrich et al., 2017). Overall, empathy is a pivotal skill that underpins the success of occupational therapy, enhancing both therapeutic relationships and treatment outcomes.

2.4.5 Empathy among occupational therapy and allied health students

Occupational therapists are skilled in evaluating functional performance, engaging in meaningful conversations with patients to understand their interests and goals, and identifying challenges and adaptive benefits in their daily activities. This professional expertise sets occupational therapy apart from other healthcare team members (Jacobs & MacRae, 2017).

As a fundamental aspect of professional behavior, empathy in occupational therapy requires understanding and imaginatively engaging with another person's experiences.

Sensitivity to the needs of others and the ability to foster compassionate acts toward patients are essential attributes for occupational therapists (Gullberg et al., 1994). Ineffective therapy, the client must feel the therapist's empathic understanding and unconditional positive regard (Temaner Brodley, 1998).

Empathy allows occupational therapists to adopt a client-centered perspective, enabling them to pursue meaningful occupational and therapeutic outcomes tailored to each individual's unique circumstances (Christiansen, 1977; Jamieson et al., 2016).

2.4.6 The level of Empathy among undergraduate Occupational Therapy Students

A comprehensive literature review was conducted on the level of empathy among undergraduate occupational therapy students, and a structured search strategy was implemented. This involved searching multiple databases, including PubMed, and CINAHL, using relevant MeSH terms and keywords such as "Empathy," "Occupational Therapy," "Students," and "Undergraduate." Boolean operators (AND, OR) were employed to refine search results effectively. Inclusion criteria were set to select peer-reviewed articles published in English (2010-2024) that focused on empathy levels in undergraduate occupational therapy students, while exclusion criteria filtered out studies on graduate practitioners, non-peer-reviewed articles, and irrelevant studies. The search process involved screening titles and abstracts for relevance, obtaining full texts for detailed review,

and extracting key information from selected articles. An update of the search was conducted in May 2024. Further details are included in Appendix (A).

Table (1) the reviewed studies that related to the level of empathy and associated factors

Reference	Country	Study design	Participants	Empathy Outcome measures	Main results	Factors
(Brown et al., 2010)	Australia	Cross-sectional	92Undergraduae occupational therapy students	Jefferson Scale of Physician Empathy (JSPE)	There was no difference in the variables age, sex, or year of schooling concerning empathy (Mdn = 115)	Clinical training
Boyle et al.,2010	Australia	Cross-sectional	Midwifery, Occupational therapy, Physical therapy, health science 469	The Jefferson Scale of Physician Empathy (Health Professional version)	The mean empathy score for female students (mean=109.78, SD=14.73) was significantly higher than the mean empathy score for males (mean=104.76, SD=12.21), p=0.002. There was a significant difference in empathy scores between younger students (< 26 years), p=0.039. Students enrolled in Occupational Therapy reported the highest levels of empathy (mean=111.55, SD=17.12) while nursing students reported the lowest levels of empathy	Gender Age health professional courses

					(mean=107.34, SD=13.74)	
Serrada-Tejeda et al., 2022)	Spain	Cross-sectional	221occupational therapy students	The Davis Interpersonal Reactivity Index (IRI) and the Jefferson Scale of Empathy-Health Profession Student's Spanish version (JSPE-HPSS)	high level of empathy was found on all dimensions of the IRI (69.84(9.80)) and the JSPE-HPS-S (122 (94–140)	Gender the occupational therapy profession is patient-oriented clinical practice
(De Klerk et al., 2023)		Cross-sectional	112occupational therapy students	Interpersonal Reactivity Index (IRI)	the students had a satisfactory level of empathy (mean score=3.6-3.8)	impact of the Covid-19 pandemic the lack of clinical fieldwork experience
(Metz & Christoff, 2020)		Cross-sectional	(N=28) DPT* (N=20) OTD* (N=25) MSLP*	Jefferson Scale of Empathy – Health Professions Student version (JSPE-HPSS)	the mean empathy score for occupational therapy students (ranging from 111±10 to 116±10)	stigmatized medical conditions

limited studies exploring empathy among occupational therapy students (Boyle et al.,2010; Brown et al., 2010; De Klerk et al., 2023; Metz & Christoff, 2020; Serrada-Tejeda et al., 2022).

In the majority of studies, a cross-sectional design has been employed to assess empathy levels among undergraduate occupational therapy students, and sample sizes ranging from 92 to 221 students (Brown et al., 2010; De Klerk et al., 2023; Serrada-Tejeda et al., 2022). While other studies included other allied healthcare disciplines such as physiotherapy, midwifery, and health sciences in addition to occupational therapy (Boyle et al.,2010; Metz & Christoff, 2020)

Although studies exploring empathy among allied health students have been conducted across different nations, only a few have focused on the Arab world. The variations in cultural values, beliefs, and education systems in this region necessitate specific investigation to accurately reflect the empathy levels among allied health students in the Arab world (Altwalbeh et al., 2018; Ayuob et al., 2016; Hasan et al., 2013).

Regarding the Arab world, no previous studies were conducted among occupational therapy students. One study by Altwalbeh et al. conducted the first empathy study among undergraduate nursing students in Jordan, revealing that self-reported empathy was lower than in other studies. Female students demonstrated significantly higher empathy levels than

male students, and empathy scores increased progressively each study year (Altwalbeh et al., 2018).

Studies focusing on empathy in occupational therapy students have been limited, with earlier research by Christiansen evaluating the empathic abilities of occupational therapy students using the Hogan Empathy Scale. This study found that occupational therapy students possessed skills that promote and support therapeutic interactions (Christiansen, 1977). Similarly, Wise and Page conducted a study among first-year occupational therapy students utilizing the Affective Sensitivity Scale, which suggested that a formative approach may positively impact students' empathy levels (Wise & Page, 1980). Most studies on occupational therapy students have used the Jefferson Medical Empathy Scale, a version for health professionals (JSPE-HPS), and have mainly been conducted in Australia, South Africa, and Spain (Brown et al., 2010; Serrada et al., 2022; De Klerk et al., 2023).

However, these studies reported lower empathy levels among occupational therapy students compared to other health professionals, and no significant increases in empathy occurred during the university program (Brown et al., 2010). A cross-sectional study among 221 occupational therapy students from a Spanish university revealed a high level of empathy (Serrada et al., 2022). Recently De Klerk et al 2023 conducted a study in South Africa that indicated that occupational therapy students have a satisfactory level of empathy.

2.4.7 Factors Influence Empathy Levels

Several factors have been found to positively influence empathy levels among health professionals and students, including professional experience, longer time on the undergraduate course, female sex, older age, being married, having children, and having siblings (Maximiano-Barreto et al., 2020). Moreover, empirical education through learning processes has positively impacted empathy (Moudatsou et al., 2020).

The majority of studies reported females as being more empathic than males across various health profession students (Ayuob et al., 2016; Boyle et al., 2009; Boyle & Earl, 2013; Boyle et al., 2014; Fields et al., 2011; Altwalbeh et al., 2018; Hasan et al., 2013; Petrucci et al., 2016; Williams et al., 2015). This trend was similarly observed in a study among undergraduate occupational therapy students, where females demonstrated higher levels of empathy than males (Serrada et al., 2022). However, unlike a study conducted with occupational therapy students by Brown et al. (2010), no significant gender differences were found in empathy levels.

Gender differences in empathy may be attributed to various factors, such as women's better ability for social interaction, their greater sensitivity to social and emotional stimuli, and the manifestation of more caring traits at a young age. Additionally, historical, evolutionary, and cultural factors, hormonal and physiological elements, traditional division of work, and parental involvement in childraising may contribute to these variations (Hojat, 2016).

Age has also been found to influence empathy levels, with older healthcare students scoring higher levels of empathy than younger students. The acquisition of more life experiences has been suggested to increase empathy levels (Boyle et al., 2010; Williams et al., 2015). However, age differences in empathy were not consistently observed among undergraduate occupational therapy students in previous studies (Brown et al., 2010; Serrada et al., 2022).

Studies have revealed a decline in empathy levels from the first to the last year of student education. This aligns with trends in other health areas, including dentistry, pharmacy, medicine, veterinary medicine, and nursing (Borghi et al., 2016; Nunes et al., 2011). This decrease in empathy may be attributed to increased professional training and focus on technical and medical aspects of occupational therapy, which may inadvertently overshadow empathic understanding during clinical scenarios (Borghi et al., 2016). To counter this decline, practice educators should take measures to enhance students' empathic understanding, such as implementing simulated learning experiences to develop sympathetic skills and effective interaction administration, as well as incorporating courses that employ auto-ethnography and intensive reading of literary narratives to cultivate empathic-centered care among occupational therapy students (Brown et al., 2010; Cavenaugh, 2022., Hoppes et al., 2007., Jamieson et al., 2006).

In addition to the previous factors De Klerk et al. (2023) indicated that the COVID-19 pandemic, limited clinical fieldwork experience, repeating a year of training, and the initiation of occupational therapy training influenced students' empathy levels (De Klerk et al.,2023).

On the other hand, studies conducted at the Faculty of Medicine, King Abdulaziz University in Jeddah, and Kuwait University Medical School suggested that socio-cultural differences between Western and Eastern countries might be contributing factors to the lower empathy levels observed among medical students in these institutions compared to their counterparts in Western countries (Ayuob et al., 2016; Hasan et al., 2013).

Chapter 3 Methodology

3.1 Study design

This study utilized a cross-sectional observational design, as proposed by Pawar (2020) a cross-sectional design is suitable in this context, as it assesses a specific category's level within a population. One of the key advantages of this design is its ability to collect data and variables from multiple subjects, facilitating the comparison of variations across different groups, as highlighted by Vega et al. (2021). By employing this method, the study aims to establish correlations and relationships among the variables, providing valuable insights into the demographic under investigation. It is important to note that the cross-sectional design does not establish causal links but indicates the presence of associations without explaining the reasons behind them, as Sedgwick (2014) emphasized.

3.2 Study setting

This study was conducted at Arab universities that offer an academic occupational therapy program in Saudi Ariba, Palestine, Jordan, Syria, and Lebanon. The participants were recruited from the Allied Medical Sciences Faculty, specifically from the Occupational Therapy Department.

3.3 Study population

Participants were recruited based on specific inclusion and exclusion criteria. Inclusion criteria required that participants be undergraduate students enrolled in the occupational therapy course.

3.4 Sampling method and sample size

This study employed a convenient sampling method to recruit Arab undergraduate occupational therapy (OT) students. This approach involves selecting participants based on their ease of availability and accessibility, making it a quick, cost-effective, and practical method (Elfil & Negida, 2016). By recruiting participants from various Arab universities, the sample can be representative of Arabic undergraduate OT students. The sample size for this cross-sectional survey study was rigorously calculated to ensure the findings would be statistically robust and generalizable. Given that the total population size was unknown, a standard statistical approach was employed to determine the appropriate number of participants. Based on the target 95% confidence level and acceptable 7 % margin of error, the calculated sample size was 198 respondents. This sample size was deemed sufficient to provide adequate statistical power.

3.5 Participant recruitment procedure

Potential participants for this study were recruited from the Department of Occupational Therapy. The occupational therapy department administration carried out the identification

of eligible participants based on the inclusion criteria. During the academic semester, students were invited to contribute and participate in the study by a department administrator. An internet-based survey method was utilized to facilitate data collection, utilizing online platforms and email, which is a cost-effective option and well-suited for obtaining data from otherwise hard-to-reach samples (Regmi et al., 2017).

The occupational therapy department administration sent online platforms to the potential participants, including an invitation letter that explained the study's purpose and importance, along with a participants' information sheet. The PIS contained the researcher's contact details for any clarifications or inquiries. The questionnaire, consisting of demographic questions, the Jefferson Scale of Physician Empathy-Health Profession Students' Version (JSPE-HP) scale, and the Interpersonal Reactivity Index (IRI) (Appendix B), was provided to the participants through the online survey platform. Completing the entire questionnaire took approximately 15 minutes. All study documents were translated into Arabic using appropriate terminology and phrasing to ensure comprehensibility.

3.6 Data collection instrument

3.6.1 The sociodemographic questionnaire

3.6.2 Demographic data

Primary demographic data were gathered from the participants through a sociodemographic questionnaire. This questionnaire encompassed essential information, including gender, age, year level of study, religion, and place of residence or living area.

3.6.3 The Jefferson Scale of Physician Empathy-Health Profession Students' Version (JSPE-HPS)

The present study utilised the Jefferson Scale of Physician Empathy-Health Profession Students' Version (JSPE-HPS) as its primary measurement tool. This version consists of 20 items, and participants were asked to rate their responses on a 7-point Likert scale, ranging from "strongly agree" (scored as 7) to "disagree" (scored as 1). The completion of the scale was expected to take less than 10 minutes. Notably, ten items were phrased negatively and scored in reverse order. A higher score on the scale signifies a stronger inclination towards empathic engagement in inpatient care (Hojat, 2016). Previous research has supported the measurement properties of the JSPE-HPS, instilling confidence in researchers to employ it for assessing empathy in diverse health profession students, particularly for program evaluation. The scale demonstrated satisfactory internal consistency, with a Cronbach's

coefficient α of 0.78 and acceptable test-retest reliability, ranging from 0.58 to 0.69 (Fields et al., 2011). To ensure cultural appropriateness, the researcher sought permission from the Empathy Project Coordinator to use an Arabic version of the scale. This enabled assessing empathy levels among Arabic undergraduate occupational therapy students and contributing valuable insights to the field. The Jefferson Scale of Empathy-Health Profession Student's version (JSPE-HPS) (Hojat et al., 2001) measures empathy within clinical relationships, focusing on both cognitive aspects and emotional perspectives. This scale consists of 20 items divided into three dimensions: perspective-taking, compassionate care, and putting oneself in the patient's place. Responses are recorded on a Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree), resulting in scores from 20 to 140. Higher scores indicate greater levels of empathy. The JSPE-HPS is reliable and valid (Altwalbeh et al., 2018, Brown et al., 2010, Serrada et al., 2022, De Klerk et al., 2023).

3.6.4 The Interpersonal Reactivity Index (IRI)

In addition to the JSPE-HPS, the study utilized the Interpersonal Reactivity Index (IRI) to assess empathy and interpersonal sensitivity among participants. The IRI is beneficial for researching the multidimensional nature of empathy in the general population (Davis, 1983). Adapted to Arabic, this scale includes 28 items rated on a Likert-type scale with five response options, ranging from 0 (does not describe me well) to 4 (describes me very well). According to Davis's model, the items are organized into four subscales, each containing seven items: perspective-taking, fantasy, empathic concern, and personal distress. The

perspective-taking and fantasy subscales assess cognitive processes, while the empathic concern and personal distress subscales measure emotional responses to others' experiences of discomfort and anxiety. Scores for each subscale range from 0 to 28, with higher scores indicating greater levels of empathy.

To ensure the accuracy of the IRI for use in the Arabic context, a thorough translation was conducted in five stages, following Beaton et al.'s (2001) methodology. Bilingual translators translated the questionnaire from English to Arabic, and back-translation by two other bilingual translators confirmed its consistency. Senior faculty members then reviewed the content for cultural and linguistic adaptations, ensuring clarity and relevance. according to evidence-based practice, it is recommended that the translation be applied in several stages by adopting the method of knowledge extraction, forward-backward translation, and experimental translation by specialized committees composed of translators specialized in both the Arabic language and occupational therapy, to ensure that the translated content is suitable for Arab and Islamic culture on one hand, while preserving scientific meaning on the other hand (Beaton et al., 2001).

3.6.4.1 Data collection procedure

The data collection method employed in this study was based on internet/e-based technologies, such as online platforms and email, which offer a cost-effective survey option. These methods have demonstrated viability and success in gathering data from samples that

are typically difficult to obtain (Regmi et al., 2017). Potential participants received personalized emails from the occupational therapy department administration.

The email included an initial page before the survey starts, presenting a project summary, information from the participant information sheet, the researcher's contact details, and a downloadable participant information sheet (PIS). This was crucial to ensure that participants were provided with the legally required data protection information in a format they could retain. The final page of the email contained a 'Submit' button, preceded by a statement reminding the participant that clicking this button at the end of the survey will constitute their full consent to participate, with complete knowledge of the information provided in the participant information sheet. Additionally, participants were informed that they could exit the survey at any time by skipping to another section.

Upon selecting the 'Submit' button, potential participants were directed to the research survey questionnaire. The survey questions would only be visible to the participant when they click on or type in their responses, ensuring voluntary participation. Survey responses were automatically saved as participants progressed through the survey pages. The online survey structure preserved data integrity and facilitated easy data transfer into a database, such as Excel or SPSS, for analysis. The option to export responses into a compatible database was provided, minimizing

transcription errors and safeguarding against survey participant tampering. This approach aimed to streamline data collection while upholding data security and accuracy throughout the research process.

3.6.4.2 Data analysis

Data collection was conducted through the Google online survey platform, ensuring the confidentiality and anonymity of all information collected. Subsequently, the data were downloadable from the Google platform in CSV format, compatible with Excel spreadsheets. These data were then transcribed into Microsoft Excel, ensuring the de-identification of participants.

Data analysis was carried out using SPSS software version 20. Descriptive statistical analyses were employed, including the calculation of frequencies and percentages for categorical data, as well as medians and percentiles for numerical data. the Kruskal–Wallis and the Mann-Whitney (nonparametric) tests were employed.

3.7 Ethical consideration

The study followed the ethical standards established by the Arab American University – Palestine. Before the initiation of the research, ethical clearance was obtained in compliance with the university's guidelines. ethical approval number R-2023/A/3/N. Appendix C

Chapter 4 Results

4.1 Recruitment

The recruitment period for the study began on December 28, 2023, and concluded on January 8, 2024.

Participants for this study were drawn from five Arabic countries: Palestine, Saudi Arabia, Lebanon, Syria, Jordan, and Kuwait. They were enrolled in the occupational therapy department as undergraduate students ranging from the first to fifth-year levels.

The electronic questionnaire used in this study was designed to obtain informed consent from participants before they began the survey. Participants were informed that participation in the study was voluntary, that they could withdraw at any time, and that their confidentiality would be maintained. The questionnaire also included a section where participants could provide their notes and questions.

4.2 Data completeness and normality

The electronic questionnaire used in this study yielded a total of 300 responses during the data collection period from December 26, 2023, to January 8, 2024. Out of these responses, 219 were fully completed, resulting in a completeness rate of 73%.

The normality of the key variables was assessed using the Shapiro-Wilk test, Q-Q plots, and histograms. The results of the Shapiro-Wilk test indicated that the data for key variables were not normally distributed ($p < 0.05$). Visual inspections of the Q-Q plots and histograms

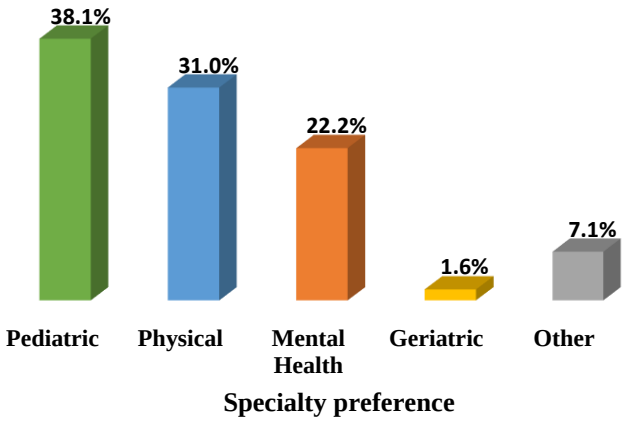
confirmed deviations from normality, showing skewness in several variables, including the JSPE-HPS and IRI scores.

Given the non-normal distribution of the data, parametric statistical methods were deemed inappropriate. Instead, the data was analyzed using non-parametric tests, such as the Mann-Whitney U test and the Kruskal-Wallis test. These tests do not assume normality and are better suited for the non-normally distributed data collected in this study.

4.3 Sociodemographic characteristics

The study included the participation of 219 students from five Arabic universities, with a predominant representation from Palestine (32.9%). Most participants were female (77.6%), and the median age was 20. Regarding academic progression, the majority were in their fourth year (36.1%), and (45.2%) had complete clinical training, (54.8%) did not complete clinical training. Furthermore, (22.8%) reported having a family member with a disability. The sociodemographic details of the sample are provided in Table (1).

Among the participants, (57.5%) had selected their preferred specialty, with (38.1%) expressing a preference for pediatrics. The frequency of responses regarding occupational therapy specialty preference is depicted in Graph (1).



Graph (1): Frequency of responses regarding occupational therapy specialty preference

4.4 Descriptive statistics for the outcome measures

Overall, participants showcased a notable level of empathy, as indicated by the IRI total score of 94.75 (11.62). The JSPE-HPS-S total score was recorded at 109 (102-114). Table (2) presents descriptive statistics for empathy measures and their corresponding dimensions, categorized by country. Specifically, participants from Syria demonstrated a high level of empathy, as reflected in the JSPE-HPS-S score of 116 (99-119). In contrast, participants from Jordan exhibited the highest level of empathy according to the IRI total score, with a value of 98.10 (11.77).

Concerning the JSPE-HPS domains, the table indicates consistent results across the five countries in perspective-taking, with scores ranging from 57 to 63. Furthermore, no notable differences were observed in compassionate care and understanding the patient's perspective.

No significant differences were observed across the five countries concerning the domains of the IRI scale.

Upon analyzing participants by academic year, it was observed that those in the first year displayed the highest level of empathy, as indicated by the IRI total score of 99.19 (9.68). Additionally, participants in the second year demonstrated the highest level of empathy according to the JSPE-HPS-S total score, registering 111 (105-117). Table (3) represents descriptive statistics for empathy measures and their respective dimensions according to academic years.

Females exhibited a heightened propensity for empathy in comparison to males, as evidenced by the findings of this investigation. Evaluation of (JSPE-HPS-S) revealed no discernible gender-based disparities, with respective mean scores of 110 (102-115) and 104(97-112) for females and males. Conversely, analysis of the (IRI) demonstrated a marked difference, indicating that females scored notably higher in empathy levels with mean scores of 96.24(11.20) and 89.57(11.70) for females and males, respectively.

Table (1): Demographics of Participants (n=219)

Variable	Country						Total sample
	Palestine	Kuwait	Jordan	Saudia Arabia	Lebanon	Syria	
Gender							
Male (n, %)	9 (4.1)	0 (0)	3 (1.4)	34 (15.5)	0 (0)	3 (1.4)	49 (22.4)
Female (n, %)	63 (28.8)	14 (6.4)	38 (17.4)	25 (11.4)	16 (7.3)	14 (6.4)	170 (77.6)
Age, median (IQR)	20 (19-21)	22 (19-22.5)	20 (19-21)	21 (20-22)	21 (20-22)	19 (19-21)	20 (19-22)
Academic years							
First year (n, %)	17 (7.8)	0 (0)	0 (0)	3 (1.4)	2(0.9)	4 (1.8)	26 (11.9)
Second year (n, %)	17 (7.8)	5 (2.3)	19 (8.7)	11 (5.0)	1 (0.5)	8 (3.7)	61 (27.9)
Third year (n, %)	14 (6.4)	0 (0)	9 (4.1)	18 (8.2)	2 (0.9)	0 (0)	43 (19.6)
Fourth year (n, %)	22 (10.0)	7 (3.2)	11 (5.0)	23 (10.5)	11 (5.0)	5	79 (36.1)
Fifth year (n, %)	2 (0.9)	2 (0.9)	2 (0.9)	4 (1.8)	0 (0)	0 (0)	10 (4.6)
Clinical training							
Yes (n, %)	31 (14.2)	9 (4.1)	12 (5.5)	24 (11.0)	14 (6.4)	9 (4.1)	99 (45.2)
No (n, %)	41 (18.7)	5 (2.3)	29 (13.2)	35 (16.0)	2 (0.9)	8 (3.7)	120 (54.8)
Specialty preference							
Decided (n, %)	46 (21.0)	10 (4.6)	28 12.8)	29 (13.2)	7 (3.2)	6 (2.7)	126 (57.5)
Undecided (n, %)	26 (11.9)	4 (1.8)	13 (5.9)	30 (13.7)	9 (4.1)	11 (5.0)	93 (42.5)
Family member with disability							
Yes (n, %)	13 (5.9)	7 (3.2)	11 (5.0)	11 (5.0)	4 (1.8)	4 (1.8)	50 (22.8)
No (n, %)	59 (26.9)	7 (3.2)	30 (13.7)	48 (21.9)	12 (5.5)	13 (5.9)	169 (77.2)

Table (2): Descriptive statistics for empathy measures and their respective dimensions according to country. Data are presented as median (IQR) unless otherwise indicated

Empathy measure	**Country**						**Total Sample**
	Palestine	Kuwait	Jordan	Saudi Arabia	Lebanon	Syria	
JSPE-HPS **total score**	109 (102-114)	111 (105-117)	107 (98-114)	108 (102-115)	107 (97-111)	116 (99-119)	109 (102-114)
Perspective taking	59 (55-64)	61 (57-66)	59 (52-63)	60 (55-64)	57 (53-61)	63 (55-68)	59 (54-64)
Compassionate care	42 (39-44)	44 (42-47)	42 (38-45)	42 (39-45)	41(37-45)	43 (41-47)	43 (39-45)
Standing Patient's Shoes	8 (6-9)	6 (4-8)	7 (6-8)	7 (5-9)	7 (5-8)	7 (6-9)	7 (6-8)
IRI **total score**	94.46 (11.68) †	92.86 (14.36) †	98.10 (11.77) †	92.93 (10.53) †	92.75 (11.65) †	97.56 (11.61) †	94.75 (11.62) †
Perspective taking	25 (23-27)	22 (21-26)	25 (22-27)	24 (21-29)	25 (23-30)	25 (22-29)	25 (22-27)
Empathic concern	28 (25-31)	28 (24-31)	29 (27-31)	27 (23-30)	27 (22-29)	29 (27-31)	28 (25-31)
Fantasy	25 (21-29)	23 (17-29)	28 (22-30)	24 (22-28)	24 (18-29)	27 (23-29)	25 (21-25)
Personal distress	17 (14-20)	21 (13-23)	20 (15-23)	17 (14-20)	17 (14-21)	18 (15-23)	18 (14-21)

†: Data are presented as mean (SD); IRI: Interpersonal Reactivity Index JSPE-HPS: Jefferson Scale of Empathy in Health Profession Students.

Table (3): Descriptive statistics for empathy measures and their respective dimensions according to academic years. Data are presented as median (IQR) unless otherwise indicated

Empathy measure	**Academic years**				
	First-year	Second year	Third year	Fourth-year	Fifth year
JSPE-HPS **total score**	110 (103-117)	111 (105-117)	108 (99-113)	105 (100-112)	110 (95-121)
Perspective taking	63 (59-67)	61 (55-65)	59 (54-63)	57 (53-62)	58 (50-65)
Compassionate care	43 (38-45)	43 (41-45)	41 (38-45)	42 (39-44)	43 (39-50)
Standing Patient's Shoes	8 (6-9)	7 (5-8)	7 (5-8)	7 (6-9)	9 (7-9)
IRI **total score**	99.19 (9.68) †	96.23 (14.18) †	96.07 (10.15) †	91.80 (10.24) †	91.80 (10.77) †
Perspective taking	26 (23-28)	25 (23-28)	25 (22-28)	24 (21-27)	24 (21-28)
Empathic concern	30 (25-31)	29 (22-31)	30 (26-31)	27 (24-27)	27 (23-29)
Fantasy	28 (23-31)	27 (23-28)	26 (22-28)	23 (20-28)	23 (20-27)
Personal distress	18 (16-21)	19 (13-22)	18 (14-21)	17 (14-21)	18 (14-21)

†: Data are presented as mean (SD); IRI: Interpersonal Reactivity Index JSPE-HPS: Jefferson Scale of Empathy in Health Profession Students

Table (4): Descriptive statistics for empathy measures and their respective dimensions by gender, specialty preference, clinical training, and family member with a disability. data are presented as median (IQR) unless otherwise indicated

Empathy measure	**Gender**		**Specialty preference**		**Clinical Training**		**Family member with Disability**	
	Male	Female	Decided	Undecided	Yes	No	Yes	No
JSPE-HPS-S total score	104 (97-112)	110 (102-115)	108 (101-114)	109 (103-115)	108 (100-114)	109 (102-115)	111 (102-116)	108 (101-114)
Perspective taking	57 (52-64)	59 (55-64)	59(54-64)	61 (56-64)	59 (54-63)	60 (55-64)	60 (55-64)	59 (54-64)
Compassionate care	41 (38-44)	43 (39-45)	43 (39-45)	42 (39-45)	42 (39-45)	43 (40-45)	43 (40-45)	42 (39-45)
Standing Patient's Shoes	7 (5-8)	8 (6-8)	8 (6-8)	7 (6-9)	7 (6-9)	8 (6-8)	8 (5-9)	7 (6-8)
IRI total score	89.57 (11.70) †	96.24 (11.20) †	93.28 (11.86) †	96.74 (11.05) †	93.04 (10.37) †	96.16 (12.43) †	96.74 (10.63) †	94.16 (11.87) †
Perspective taking	23 (20-27)	25 (23-28)	25 (22-27)	25 (22-28)	25 (21-27)	25 (23-27)	24 (22-27)	25 (22-28)
Empathic concern	27 (23-30)	29 (25-31)	28 (25-31)	29 (25-31)	28 (24-30)	29 (25-31)	29 (27-30)	28 (25-31)
Fantasy	24 (20-27)	26 (21-29)	24 (20-28)	27 (22-29)	24 (20-28)	27 (22-30)	26 (22-29)	25 (21-29
Personal distress	15 (13-20)	18 (15-21)	17 (14-21)	18 (15-21)	18 (14-21)	18 (14-21)	21 (16-22)	17 (14-20)

†: Data are presented as mean (SD); IRI: Interpersonal Reactivity Index JSPE-HPS: Jefferson Scale of Empathy in Health Profession Students

4.5 Comparative analysis

The statistical analysis of the data indicated a significant difference in the total JSPE-HPS scores between male and female participants (p=0.02). However, no statistically significant difference was observed in the fourth domain of the scale when analyzed separately. Additionally, the total IRI score showed a highly significant difference (p=0.00). Further analysis of the IRI subscales revealed significant differences in perspective-taking (p=0.00), fantasy (p=0.04), and personal distress (p=0.02). Table 5 provides a comparative analysis of empathy scale scores between male and female participants using the JSPE-HPS-S and IRI measures. The results are presented with mean ranks, Mann-Whitney U statistics, Z scores, and p-values.

The analysis regarding specialty preference between the two groups— undecided and those who had decided the specialty preference—revealed the following findings. The mean rank of the JSPE-HPS-S total score was 114.04 for the undecided group and 107.02 for the decided group, with no statistically significant difference between the two groups (p=0.42). Furthermore, no statistically significant differences were found among the four domains of the JSPE-HPS-S scale. However, the mean rank of the IRI was 119.86 for the undecided group and 102.72 for the decided group, indicating a statistically significant difference (p=0.05). Specifically, the domain of empathic concern showed a statistically significant difference (p=0.03). Table (6) presents the comparative analysis of empathy scale scores between the groups based on specialty preferences.

In examining the impact of completion of clinical training on participants' empathic disposition, notable distinctions emerged. Regarding the JSPE-HPS-S Total Score, individuals

who did not undertake any clinical training exhibited a mean rank of 113.13, in contrast to 106.21 observed among those who underwent at least one clinical training session. However, these discrepancies did not reach statistical significance (p=0.42). Moreover, no statistically significant variations were identified across the four domains of the scale.

Conversely, significant differences were observed in the mean ranks of the IRI Total Score between participants who lacked clinical training (119.2) and those who underwent such training (98.08) (p=0.01). This discrepancy was particularly pronounced in the domain of empathic concern, where statistical significance was also evident (p=0.01). This indicates that completion of clinical training may have an impact on empathy, as evidenced by the significant differences observed in the IRI total score and empathic concern domain, but not in the JSPE-HPS-S total score or its domains. Table 7 provides a comprehensive overview of the comparative analysis of empathy scale scores stratified by clinical training status.

When the investigation focused on participants' familial associations with disability, noteworthy results emerged. The mean ranks for the JSPE-HPS-S total score were 118.92 for participants with a family member with a disability and 107.36 for those without. However, these distinctions did not achieve statistical significance (p=0.26). Additionally, no statistically significant differences were observed among the four domains of the JSPE-HPS-S scale. Similarly, the IRI did not reveal statistically significant differences (p=0.17) between participants with and without a family member with a disability. However, the domain of personal distress exhibited significant differences (p=0.01), with mean ranks of 129.98 and 104.09 for participants with and without familial associations with a disability, respectively.

Table 9 illustrates the comparative analysis of empathy scale scores between groups based on the presence of a family member with a disability.

The analysis of JSPE-HPS-S scale scores across different university years revealed statistically significant differences between the groups (p=0.05), with mean ranks ranging between 97.45 and 125.52. Notably, the domain of perspective-taking exhibited statistically significant differences among the groups (p=0.01). Table 9 provides a comprehensive representation of the comparative analysis of JSPE-HPS-S scale scores across university years.

Similarly, the analysis of the IRI scale indicated statistically significant differences between groups based on university level (p=0.01), with mean ranks ranging from 82.80 to 135.42. Notably, statistically significant differences were observed in the domains of empathic concern and fantasy (p=0.02, p=0.04, respectively). Table 10 presents a comparative analysis of IRI scale scores between groups according to university years.

The analysis of JSPE-HPS-S scale scores between groups based on country revealed no statistically significant differences (p=0.32), with mean ranks ranging from 94.63 to 129.21. Additionally, no statistically significant differences were observed among the four domains of the scale. Table 11 illustrates the comparative analysis of JSPE-HPS-S scale scores between groups according to country.

Similarly, the comparative analysis of IRI scale scores between groups based on country revealed no statistically significant differences (p=0.10), with mean ranks ranging between

96.04 and 130.55. None of the domains indicated any statistically significant differences among the groups. Table 12 presents the comparative analysis of IRI scale scores between groups according to country.

No statistically significant differences were observed between participants who had made decisions and those who were undecided regarding their preferences. Moreover, the presence or absence of expert clinical training among participants did not yield any significant distinctions. Finally, the analysis indicated no significant variances between participants with or without a family member affected by a disability. Table (4) represents descriptive statistics for empathy measures and their respective dimensions by gender, specialty preference, clinical training, and family member with a disability.

Table (5): The comparative analysis of empathy scale scores between groups according to gender

Empathy measure	**Gender**	**Mean rank**	**U**	**Z**	***P***
JSPE-HPS-S total score	Male	92.10	3288.00	-2.25	0.02
	Female	115.16			
Perspective taking	Male	103.70	3856.50	-.79	0.43
	Female	111.81			
Compassionate care	Male	95.07	3433.50	-1.88	0.06
	Female	114.30			
Standing Patient's Shoes	Male	95.69	3464.00	-1.81	0.07
	Female	114.12			
IRI total score	Male	83.45	2864.00	-3.33	0.00
	Female	117.65			
Perspective taking	Male	84.03	2892.50	-3.27	0.00
	Female	117.49			
Empathic concern	Male	98.08	3581.00	-1.50	0.13
	Female	113.44			
Fantasy	Male	93.64	3363.50	-2.06	0.04
	Female	114.71			
Personal distress	Male	92.00	3283.00	-2.26	0.02
	Female	115.19			

Table (6): The comparative analysis of empathy scale scores between the groups based on specialty preferences

Empathy measure	Specialty preference	Mean rank	U	Z	*P*
JSPE-HPS-S total score	Undecided	114.04	5483.00	-0.81	0.42
	Decided	107.02			
Perspective taking	Undecided	116.53	5251.50	-1.31	0.19
	Decided	105.18			
Compassionate care	Undecided	109.09	5774.00	-0.18	0.85
	Decided	110.67			
Standing Patient's Shoes	Undecided	107.39	5616.50	-0.53	0.60
	Decided	111.92			
IRI total score	Undecided	119.86	4942.00	-1.98	0.05
	Decided	102.72			
Perspective taking	Undecided	111.97	5676.00	-0.40	0.69
	Decided	108.55			
Empathic concern	Undecided	120.88	4847.50	-2.19	0.03
	Decided	101.97			
Fantasy	Undecided	113.97	5489.50	-0.80	0.42
	Decided	107.07			
Personal distress	Undecided	117.42	5169.00	-1.49	0.14
	Decided	104.52			

Table (7): The comparative analysis of empathy scale scores between the groups based on clinical training

Empathy measure	Clinical Training	Mean rank	U	Z	*P*
JSPE-HPS-S total score	No	113.13	5564.50	-0.81	0.42
	Yes	106.21			
Perspective taking	No	113.78	5486.50	-0.97	0.33
	Yes	105.42			
Compassionate care	No	111.63	5744.50	-0.42	0.67
	Yes	108.03			
Standing Patient's Shoes	No	109.20	5844.00	-0.21	0.84
	Yes	110.97			
IRI total score	No	119.84	4759.50	-2.53	0.01
	Yes	98.08			

Perspective taking	No	115.87	5236.00	-1.51	0.13
	Yes	102.89			
Empathic concern	No	119.75	4769.50	-2.51	0.01
	Yes	98.18			
Fantasy	No	115.95	5226.50	-1.53	0.13
	Yes	102.79			
Personal distress	No	110.12	5926.00	-0.03	0.98
	Yes	109.86			

Table (8): the comparative analysis of empathy scale scores between the groups based on Family member with Disability.

Empathy measure	Family member with Disability	Mean rank	U	Z	*P*
JSPE-HPS-S total score	No	107.36	3779.00	-1.13	0.26
	Yes	118.92			
Perspective taking	No	108.53	3976.00	-0.63	0.53
	Yes	114.98			
Compassionate care	No	108.10	3904.00	-0.82	0.41
	Yes	116.42			
Standing Patient's Shoes	No	109.02	4059.00	-0.43	0.67
	Yes	113.32			
IRI total score	No	106.81	3686.50	-1.37	0.17
	Yes	120.77			
Perspective taking	No	112.26	3843.50	-0.97	0.33
	Yes	102.37			
Empathic concern	No	108.27	3932.50	-0.74	0.46
	Yes	115.85			
Fantasy	No	108.74	4012.00	-0.54	0.59
	Yes	114.26			
Personal distress	No	104.09	3226.00	-2.54	0.01
	Yes	129.98			

Table (9): The comparative analysis of JSPE-HPS-S scale scores between groups according to university years

Variables	Academic years	Mean rank	Kruskal-Wallis H	*P*
JSPE-HPS-S total score	First year	125.00	9.62	0.05
	Second year	125.52		
	Third year	99.66		
	Fourth year	97.45		
	Fifth year	119.95		
Perspective taking	First year	140.87	13.04	0.01
	Second year	121.72		
	Third year	102.59		
	Fourth year	95.62		
	Fifth year	103.70		
Compassionate care	First year	106.50	4.18	0.38
	Second year	121.77		
	Third year	102.65		
	Fourth year	103.98		
	Fifth year	126.45		
Standing Patient's Shoes	First year	120.04	3.09	0.54
	Second year	106.66		
	Third year	107.56		
	Fourth year	107.05		
	Fifth year	138.10		

Table (10): The comparative analysis of IRI scale scores between groups according to university years

Variables	Academic years	Mean rank	Kruskal-Wallis H	*P*
IRI total score	First year	135.42	14.24	0.01
	Second year	120.36		
	Third year	118.01		
	Fourth year	92.72		
	Fifth year	82.80		
Perspective taking	First year	126.71	5.11	0.28
	Second year	116.67		
	Third year	112.47		
	Fourth year	99.09		
	Fifth year	101.40		
Empathic concern	First year	135.85	11.64	0.02
	Second year	120.35		
	Third year	112.44		
	Fourth year	94.60		
	Fifth year	90.80		
Fantasy	First year	126.60	10.12	0.04
	Second year	112.39		
	Third year	127.30		
	Fourth year	95.89		
	Fifth year	89.35		
Personal distress	First year	112.44	.58	0.96
	Second year	113.17		
	Third year	112.07		
	Fourth year	106.32		
	Fifth year	104.45		

Table (11): Comparative analysis of JSPE-HPS-S scale scores between groups according to country

Variables	Country	Mean rank	Kruskal-Wallis H	*P*
JSPE-HPS-S total score	Palestine	109.26	5.83	0.32
	Kuwait	129.21		
	Jordan	99.63		
	Saudia Arabia	110.75		
	Lebanon	94.63		
	Syria	134.21		
Perspective taking	Palestine	111.71	6.41	0.27
	Kuwait	132.82		
	Jordan	97.07		
	Saudia Arabia	111.86		
	Lebanon	90.41		
	Syria	127.12		
Compassionate care	Palestine	103.05	6.39	0.27
	Kuwait	137.93		
	Jordan	106.96		
	Saudia Arabia	109.78		
	Lebanon	100.59		
	Syria	133.38		
Standing Patient's Shoes	Palestine	115.50	5.18	0.39
	Kuwait	76.21		
	Jordan	106.02		
	Saudia Arabia	114.58		
	Lebanon	106.25		
	Syria	111.74		

Table (12): The comparative analysis of IRI scale scores between groups according to country

Variables	Country	Mean rank	Kruskal-Wallis H	*P*
IRI total score	Palestine	108.94	9.22	.10
	Kuwait	96.04		
	Jordan	130.55		
	Saudia Arabia	98.57		
	Lebanon	96.28		
	Syria	129.00		
Perspective taking	Palestine	116.40	5.70	
	Kuwait	82.96		.34
	Jordan	99.48		
	Saudia Arabia	109.19		
	Lebanon	124.47		
	Syria	119.76		
Empathic concern	Palestine	107.62	4.51	.48
	Kuwait	95.18		
	Jordan	124.44		
	Saudia Arabia	106.53		
	Lebanon	96.66		
	Syria	122.06		
Fantasy	Palestine	111.19	8.23	.14
	Kuwait	103.57		
	Jordan	128.78		
	Saudia Arabia	96.63		
	Lebanon	95.53		
	Syria	124.97		
Personal distress	Palestine	101.37	10.58	
	Kuwait	135.00		.06
	Jordan	132.49		
	Saudia Arabia	99.94		
	Lebanon	101.59		
	Syria	114.56		

Chapter 5 Discussion and Conclusion

5.1 Discussion

This study represents the first investigation conducted among undergraduate occupational therapy students in Arabic universities, focusing on exploring empathy levels. the only other available studies were conducted in Australia (Brown et al., 2010) Spain (Serrada et al., 2022), and South Africa (De Klerk et al., 2023).

The sample size of this study, when juxtaposed with Brown et al. (2010) and Serrada et al. (2022), demonstrated a similar size. Brown et al. (2010) comprised 92 participants, while Serrada et al. (2022) involved 221 individuals, and De Klerk et al., (2023) conducted among 112 students.

The findings of this study indicated that Arabic occupational therapy students displayed a satisfactory level of empathy, as assessed by both the JSPE-HPS-S and IRI instruments. However, it was observed that the level of empathy measured by the JSPE-HPS-S was comparatively lower than that reported in similar studies conducted by Brown et al. (2010) Serrada et al. (2022), and De Klerk et al., (2023). Conversely, the total score on the IRI in this study was higher than that reported by Serrada et al.

The Jefferson Scale of Physician Empathy-Health Profession Students (JSPE-HPS-S) and the Interpersonal Reactivity Index (IRI) are both instruments designed to measure empathy but differ significantly in their focus and structure. The JSPE-HPS-S is specifically tailored for health profession students and emphasizes empathy in the context of patient care, assessing cognitive aspects of empathy such as perspective-taking and understanding patient

emotions (Hojat, 2016). In contrast, the IRI is a broader tool that measures general empathy across four subscales: Perspective Taking, Fantasy, Empathic Concern, and Personal Distress, capturing both cognitive and emotional dimensions of empathy in various contexts (Davis, 1983). These differences in scope and target audience can lead to variations in empathy levels measured by the two instruments within the same sample. The JSPE-HPS-S, being more context-specific, may yield higher empathy scores in health profession students who are trained to exhibit empathetic behavior towards patients. Meanwhile, the IRI's broader approach may reveal more nuanced and diverse aspects of empathy, potentially highlighting areas where the same individuals might show less empathy in non-clinical scenarios. These variations underscore the importance of context and specificity in empathy measurement tools.

This study involved participants from various Arabic countries, reflecting a broad representation. Despite this diversity, the analysis revealed no statistically significant differences among them. As emphasized by Jami et al. (2023), culture plays a pivotal role in shaping empathic behavior. Therefore, it is not unexpected that the findings across countries were similar, owing to the shared cultural context among participants. Another noteworthy observation is that most participants in this study hailed from Palestine, suggesting an unequal representation among the included countries.

The study's findings revealed that females exhibited a higher level of empathy than males, consistent with prior research (Brown et al., 2010, Serrada et al., 2022,). However, it is important to note that the larger proportion of females in this study than males might have influenced the results.

In terms of clinical training, the results showed differences between those who finished the training and those who didn't. however,45.2% of the participants completed at least one clinical training fieldwork.

Clinical training is a key period of significant learning, skill development, and growth for occupational therapy students. It has been shown to influence how students perceive themselves working in the future as occupational therapists (Underman & Hirshfield, 2017) Hence, students' clinical training can have long-term effects on how they subsequently interact with their clients. A review of the literature yielded mixed results, with both positive and no correlations found between empathy levels and the number of hours of clinical fieldwork completed (Petersen, Tracey, and Owen,2016, Watt et al., 2016). However, it must be noted that some of the research was conducted in the medical context, and as such results may not be specific to occupational therapy clinical fieldwork.

Factors such as the quality of supervision, diversity of patient interactions, and reflective practices during the training period can significantly influence the level of empathy among undergraduate occupational therapy students. Effective mentoring and supervision can provide students with opportunities to observe and learn empathetic practices from experienced professionals (Bas-Sarmiento et al., 2020). Supervisors who model empathetic behavior and provide constructive feedback can positively influence students' understanding and application of empathy in clinical settings (Bas-Sarmiento et al., 2020). Exposure to a diverse range of patients with varying backgrounds, conditions, and needs can broaden students' perspectives and enhance their ability to empathize with individuals from different walks of life (Colaianni et al., 2022). Interacting with patients from diverse cultural,

socioeconomic, and demographic backgrounds can foster cultural competence and empathy (Colaianni et al., 2022). Encouraging students to engage in reflective practices, such as journaling, debriefing sessions, or case discussions, can help them process their experiences and emotions during patient interactions (Sonn and Vermeulen, 2018) Reflective practices promote self-awareness and enable students to recognize and regulate their own emotions, a crucial aspect of empathy (Sonn and Vermeulen, 2018). Observing empathetic and patient-centered care by clinical educators and healthcare professionals can serve as a powerful model for students, shaping their empathetic behaviors (Maximiano-Barreto et al., 2020). Structured feedback and debriefing sessions following patient interactions can help students recognize areas for improvement in their empathetic communication and behavior (Maximiano-Barreto et al., 2020). A supportive and psychologically safe learning environment that encourages open communication and emotional expression can foster the development of empathy among students (Maximiano-Barreto et al., 2020).

By considering and integrating these factors into the design and implementation of clinical training programs, educators and clinical supervisors can create an environment that nurtures and enhances the development of empathy among undergraduate occupational therapy students.

The statistically significant differences in empathy levels across different year levels is a notable finding, suggesting that the undergraduate occupational therapy course exerts a discernible influence on student empathy levels, with empathy declining over the years. These findings contrast with previous studies by Brown et al. (2010) and Serrada et al.

(2022), which found that the occupational therapy course does not seem to have a detrimental effect on student empathy.

This indicates that while the occupational therapy course may diminish student empathy, proactive interventions can foster increased empathy levels throughout the course (Serrada et al., 2022). In response to the observed decline in empathy among occupational therapy students, practice educators are advised to undertake measures aimed at enhancing students' empathic understanding. This could involve the implementation of simulated learning experiences to foster sympathetic skills and effective interaction administration, as well as the integration of courses utilizing auto-ethnography and in-depth reading of literary narratives to cultivate empathic-centered care among occupational therapy students (Kelly, 2022). These interventions are supported by research such as the study by Kelly (2022) that explored the impact of teaching empathy to occupational therapy students through the close reading of literary narratives, which indicated a statistically significant improvement in empathic awareness scores (Kelly, 2022). Moreover, the study by Whitlow et al. (2023) suggested that auditory simulations, such as the Hearing Voices Simulation, may increase empathy among occupational therapy students, offering further insights into potential strategies for improving empathy levels in this field (Whitlow et al., 2023). Therefore, the incorporation of such interventions in occupational therapy education may play a crucial role in addressing the decline in empathy levels among students (Kelly, 2022, Whitlow et al., 2023).

Finally, the findings of this study did not record significant differences between participants who have a family member with a disability or not. The relationship between having a

family member with a disability and empathy levels in occupational therapy students is an area of interest for understanding how personal experiences shape professional competencies.

5.2 Conclusion

In conclusion, this research has provided valuable insights into the level of empathy among undergraduate occupational therapy students in Arabic universities. The findings underscore the significance of understanding empathy within the specific cultural and educational context of Arabic universities. The exploration of empathy levels and the factors influencing them has revealed the complex interplay of cultural, social, and educational factors in shaping empathetic tendencies among occupational therapy students. By shedding light on these dynamics, the study not only contributes to the existing body of knowledge on empathy but also provides a foundation for the development of culturally sensitive interventions and educational strategies tailored to the needs of occupational therapy students in Arabic universities. Moving forward, future research must continue exploring empathy within diverse cultural contexts, fostering cross-cultural collaborations, and advancing the understanding of empathy in occupational therapy education. This will ultimately support the cultivation of empathetic and culturally competent occupational therapy practitioners, thereby enhancing the quality of care and the overall well-being of diverse populations.

5.3 Limitation

The present study may be constrained by the utilization of convenience sampling to select occupational therapy students from Arabic universities, thus limiting the generalizability of the findings due to difficulties in attaining a representative sample. While the ideal sample size was determined to be 300 participants, practical constraints such as the availability of participants, time limitations, and resources influenced the final recruitment target. Considering these factors, a sample size of 219 participants was deemed feasible and sufficient to achieve the study's objectives. In comparison to similar studies in the field of occupational therapy education, which typically involve sample sizes ranging from 100 to 250 participants, the chosen sample size of 219 participants is consistent with established research practices. This alignment with existing literature further supports the adequacy of the sample size for detecting significant effects and generalizing the findings.

Furthermore, both the Jefferson Scale of Physician Empathy (JSPE) and the Interpersonal Reactivity Index (IRI) employed in this study are self-report measures, raising the potential for response bias among participants. Lastly, the reliability and validity of the self-reported data may be compromised, as these instruments were originally developed in Western cultural contexts and are presented in the English language, with few adaptations specifically designed for implementation in multicultural settings.

5.4 Future Research Recommendations

For future studies, a larger sample through extending the data collection period to enhance the response rate and the inclusion of more OTs from more Arab countries to better represent

this population is recommended. It is essential to conduct comparative cross-cultural research to expand the scope of the research by comparing empathy levels among occupational therapy students in Arabic universities with those in other cultural contexts, providing a broader understanding of cultural influences on empathy and fostering cross-cultural collaborations. Moreover, comparative research can help identify common patterns or unique variations in empathy levels across different cultural and educational settings, enriching the existing knowledge base and guiding the development of tailored interventions and educational strategies. Additionally, conducting comparable studies may facilitate cross-cultural collaborations and the exchange of best practices, fostering a global dialogue on empathy education in occupational therapy programs. Overall, the significance of conducting comparable studies lies in their potential to offer culturally sensitive and contextually relevant insights, thereby advancing the understanding of empathy among occupational therapy students in Arabic universities.

References

Al-Heizan, M. O., Alhammad, S. A., Aldaihan, M. M., & Alwadeai, K. S. (2023). Occupational Therapy education in Saudi Arabia: Barriers and Solutions from a Cross-Sectional Survey study. *Curēus*. https://doi.org/10.7759/cureus.36139

Altwalbeh, D., Khamaiseh, A. M., & Algaralleh, A. (2018). Self-Reported Empathy among Nursing Students at a University in Jordan. *the Open Nursing Journal*, *12*(1), 255–263. https://doi.org/10.2174/1874434601812010255

Ayuob, N. N., Alharthi, M. S., Alahmadi, G. G., Bokhary, D. H., & Deek, B. S. E. (2016). Is the Empathy Level of Medical Students at KAU Changeable along their Study Years? What is behind this Change? *Medicine Science*, *5*(2), 484. https://doi.org/10.5455/medscience.2016.05.8402

Bailey, D. M., & Cohn, E. S. (2002). Understanding Others: A course to learn interactive clinical reasoning. *Occupational Therapy in Health Care*, *15*(1–2), 31–46. https://doi.org/10.1080/j003v15n01_05

Bas-Sarmiento, P., Fernández-Gutiérrez, M., Baena-Baños, M., & Romero-Sánchez, J. M. (2017). Efficacy of empathy training in nursing students: A quasi-experimental study. *Nurse Education Today*, *59*, 59–65. https://doi.org/10.1016/j.nedt.2017.08.012

Bas-Sarmiento, P., Fernández-Gutiérrez, M., Baena-Baños, M., Correro-Bermejo, A., Soler-Martins, P. S., & De La Torre-Moyano, S. (2020). Empathy training in health sciences: A systematic review. *Nurse Education in Practice*, *44*, 102739. https://doi.org/10.1016/j.nepr.2020.102739

Batson, C. D., Fultz, J., & Schoenrade, P. A. (1987). Distress and Empathy: Two Qualitatively Distinct Vicarious Emotions with Different Motivational Consequences. *Journal of Personality*, *55*(1), 19–39. https://doi.org/10.1111/j.1467-6494.1987.tb00426.x

Borghi, L., Johnson, I., Barlascini, L., Moja, E. A., & Vegni, E. (2015). Do occupational therapists' communication behaviours change with experience? *Scandinavian Journal of Occupational Therapy*, *23*(1), 50–56. https://doi.org/10.3109/11038128.2015.1058856

Boyle, M., & Earl, T. (2013, 01/28). Measurement of Empathy Levels in Undergraduate Paramedic Students. *Prehospital and disaster medicine, 28*, 1-5. https://doi.org/10.1017/S1049023X1300006X

Boyle, M., Williams, B., Brown, G. T., McKenna, L., Molloy, E., & Lewis, B. (2010). Attitudes towards patients by undergraduate health students. *IMSCI 2010 - 4th International Multi-Conference on Society, Cybernetics and Informatics, Proceedings. 1*, 1–4.

Brown, T., Williams, B., Boyle, M., Molloy, A., McKenna, L., Molloy, L., & Lewis, B. (2010). Levels of empathy in undergraduate occupational therapy students. *Occupational Therapy International*, *17*(3), 135–141. https://doi.org/10.1002/oti.297

Christiansen, C., & Baum, C. M. (1997). Occupational therapy: enabling function and well-being. In SLACK eBooks. http://ci.nii.ac.jp/ncid/BA33857706

Christiansen, Charles. (1977). Measuring empathy in occupational therapy. The American journal of occupational therapy : official publication of the American Occupational Therapy Association. 31. 19-22.

Colaianni, D., Tovar, G., Wilson, D., & Zapanta, H. (2022). Factors influencing the diversity of occupational therapy students. *Journal of Occupational Therapy Education*, *6*(1). https://doi.org/10.26681/jote.2022.060102

Crepeau, E. B., Cohn, E. S., Schell, B. a. B., & Willard, H. S. (2009). Willard & Spackman's occupational therapy. In *Lippincott Williams & Wilkins eBooks*. https://ci.nii.ac.jp/ncid/BA8587960X

Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, *44*(1), 113–126. https://doi.org/10.1037/0022-3514.44.1.113

De Klerk, L., Kramer, M., Pieterse, B., Smith, K., Van Tiddens, A., Jansen, A., & Aluko, O. (2023). Empathy and associated influencing factors in occupational therapy students: A cross-sectional study. *South African Journal of Occupational Therapy*, *53*(2), 32–42. https://doi.org/10.17159/2310-3833/2023/vol53n2a4

Decety, J., & Jackson, P. L. (2004). The functional architecture of human empathy. *Behavioral & Cognitive Neuroscience Reviews/Behavioral and Cognitive Neuroscience Reviews*, *3*(2), 71–100. https://doi.org/10.1177/1534582304267187

Derksen, F., Bensing, J., & Lagro-Janssen, A. (2013). Effectiveness of empathy in general practice: a systematic review. *British Journal of General Practice*, *63*(606), e76–e84. https://doi.org/10.3399/bjgp13x660814

Eichbaum, Q., Barbeau-Meunier, C., White, M., Ravi, R., Grant, E., Riess, H., & Bleakley, A. (2022). Empathy across cultures – one size does not fit all: from the ego-logical to the eco-logical of relational empathy. *Advances in Health Sciences Education*, *28*(2), 643–657. https://doi.org/10.1007/s10459-022-10158-y

Eisenberg, N., Eggum, N. D., & Di Giunta, L. (2010). Empathy-Related Responding: Associations with Prosocial Behavior, Aggression, and Intergroup Relations. *Social Issues and Policy Review*, *4*(1), 143–180. https://doi.org/10.1111/j.1751-2409.2010.01020.x

Eisenberg, N., Guthrie, I. K., Cumberland, A., Murphy, B. C., Shepard, S. A., Zhou, Q., & Carlo, G. (2002). Prosocial development in early adulthood: A longitudinal study. *Journal of Personality and Social Psychology*, *82*(6), 993–1006. https://doi.org/10.1037/0022-3514.82.6.993

Fields, S. K., Mahan, P., Tillman, P., Harris, J., Maxwell, K., & Hojat, M. (2011). Measuring empathy in healthcare profession students using the Jefferson Scale of Physician Empathy:

Health provider – student version. *Journal of Interprofessional Care*, *25*(4), 287-293. https://doi.org/10.3109/13561820.2011.566648

Fossey, E., & Scanlan, J. N. (2014). 2020 Vision: Promoting participation, mental health and wellbeing through occupational therapy - What are we doing and where are we heading? *Australian Occupational Therapy Journal*, *61*(4), 213–214. https://doi.org/10.1111/1440-1630.12152

Gullberg, M., Olsson, H., Alenfelt, G., Ivarsson, A. B., & Nilsson, M. (1994, 02/01). Ability to Solve Problems, Professionalism, Management, Empathy, and Working Capacity in Occupational Therapy. *Scandinavian journal of caring sciences, 8*, 173-178. https://doi.org/10.1111/j.1471-6712.1994.tb00018.x

Halpern, J. (2003). What is clinical empathy? *Journal of General Internal Medicine*, *18*(8), 670–674. https://doi.org/10.1046/j.1525-1497.2003.21017.x

Hasan, S., Al-Sharqawi, N., Dashti, F., AbdulAziz, M., Abdullah, A., Shukkur, M., Bouhaimed, M., & Thalib, L. (2013). Level of Empathy among Medical Students in Kuwait University, Kuwait. *Medical Principles and Practice*, *22*(4), 385-389. https://doi.org/10.1159/000348300

Hinojosa, J., & Kramer, P. (2014). *Evaluation in occupational therapy: Obtaining and Interpreting Data*.

Hojat, M. (2007). *Empathy in patient care: Antecedents, Development, Measurement, and Outcomes*. Springer Science & Business Media.

Hojat, M. (2016). Empathy in health professions education and patient care. In *Springer eBooks*. https://doi.org/10.1007/978-3-319-27625-0

Hojat, M., Louis, D. Z., Maxwell, K., Markham, F., Wender, R., & Gonnella, J. S. (2010). Patient perceptions of physician empathy, satisfaction with physician, interpersonal trust, and compliance. International Journal of Medical Education, 1, 83–87. https://doi.org/10.5116/ijme.4d00.b701

Hojat, M., Mangione, S., Nasca, T. J., Cohen, M. J. M., Gonnella, J. S., Erdmann, J. B., Veloski, J., & Magee, M. (2001). The Jefferson Scale of Physician Empathy: Development and Preliminary Psychometric data. *Educational and Psychological Measurement*, *61*(2), 349–365. https://doi.org/10.1177/00131640121971158

Hoppes, S., Hamilton, T. B., & Robinson, C. (2007). A course in Autoethnography: Fostering Reflective practitioners in Occupational therapy. *Occupational Therapy in Health Care*, *21*(1–2), 133–143. https://doi.org/10.1080/j003v21n01_10

Jacobs, K., & MacRae, N. (2017). *Occupational therapy essentials for clinical competence*. Slack.

Jamieson, M., Krupa, T., O'Riordan, A., O'Connor, D., Paterson, M., Ball, C., & Wilcox, S. (2016). Developing Empathy as a Foundation of Client-Centred Practice: Evaluation of a University Curriculum Initiative. *Canadian Journal of Occupational Therapy*, *73*(2), 76-85. https://doi.org/10.2182/cjot.05.0008

Kelly, C. (2022). Improving empathy of occupational therapy students through reading literary narratives. *Journal of Occupational Therapy Education*, *6*(4). https://doi.org/10.26681/jote.2022.060404

Looi, J. (2008, 05/01). Empathy and competence. *The Medical Journal of Australia, 188*, 414-416. https://doi.org/10.5694/j.1326-5377.2008.tb01687.x

Malkawi, S. (2017). Introduction to occupational therapy (in Arabic). Amman: University of Jordan Press.

Malkawi, S., Jarrar, M., Fehringer, E., & Amro, A. (2021). Senior Occupational Therapy Students in Select Arab Countries: Characteristics, Perspectives, and Academic Satisfaction Dirasat: *Educational Sciences*, 48(1), 529-540. Retrieved from: https://dsr.ju.edu.jo/djournals/index.p hp/Edu/article/view/2618

Maximiano-Barreto, M. A., Fabrício, D., M. Luchesi, B., & Chagas, M. (2020, 06/01). Factors associated with levels of empathy among students and professionals in the health

field: a systematic review. *Trends in Psychiatry and Psychotherapy*, *42*, 207-215. https://doi.org/10.1590/2237-6089-2019-0035

Mercer, S. W., & Reynolds, W. J. (2002). Empathy and quality of care. *British Journal of General Practice*, *52 Suppl*, S9-12.

Metz, A., & Christoff, A. (2020). Empathy and Regard: Perspectives held by graduate students of Rehabilitation Sciences. *˜the œInternet Journal of Allied Health Sciences and Practice*. https://doi.org/10.46743/1540-580x/2020.1832

Moudatsou, M., Stavropoulou, A., Philalithis, A., & Koukouli, S. (2020). The role of empathy in health and social care professionals. *Healthcare*, *8*(1), 26. https://doi.org/10.3390/healthcare8010026

Nunes, P., Williams, S., Sa, B., & Stevenson, K. (2011). A study of empathy decline in students from five health disciplines during their first year of training. *International Journal of Medical Education*, *2*, 12–17. https://doi.org/10.5116/ijme.4d47.ddb0

Petrucci, C., La Cerra, C., Aloisio, F., Montanari, P., & Lancia, L. (2016, 04/01). Empathy in health professional students: A comparative cross-sectional study. *Nurse Education Today*, *41*. https://doi.org/10.1016/j.nedt.2016.03.022

Sarsak, H. I. (2021). The Future of occupational therapy in rehabilitation sciences: Global impact. *Pakistan Journal of Rehabilitation*, 10(1), 1-2. Retrieved from http://ojs.zu.edu.pk/ojs/index.php/pjr/article/view/943

Serrada-Tejeda, S., Martínez-Piedrola, R. M., Huertas-Hoyas, E., Máximo-Bocanegra, N., Trugeda-Pedrajo, N., Rodríguez-Pérez, M. P., Baeza, P. S., & Pérez-De-Heredia-Torres, M. (2022). Empathy in occupational therapy students: a cross-sectional study at a Spanish university. *BMJ Open*, *12*(4), e058821. https://doi.org/10.1136/bmjopen-2021-058821

Services, L. a. L., & Suffolk, U. o. (2021, Aug 6, 2021, 9:47 AM). Advanced Literature Search Guide for Nursing and Health Sciences: STEP 2: Formulate your question. Retrieved 16th Jan 2022 from https://libguides.uos.ac.uk/AdvancedLiteratureSearchGuide/step2

Shamay-Tsoory, S. G. (2010). The neural bases for empathy. Neuroscientist, 17(1), 18–24. https://doi.org/10.1177/1073858410379268

Standards of practice for occupational therapy. (2021). *The American Journal of Occupational Therapy*, 75(Supplement_3). https://doi.org/10.5014/ajot.2021.75s3004

Taylor, R. (2017). *Kielhofner's model of human occupation: Theory and Application*. LWW.

Thirioux, Bérangère & Birault, François & Jaafari, Nematollah. (2016). Empathy Is a Protective Factor of Burnout in Physicians: New Neuro-Phenomenological Hypotheses Regarding Empathy and Sympathy in Care Relationship. Frontiers in Psychology. 7. 10.3389/fpsyg.2016.00763.

Underman, K. & Hirshfield, L. (2017). Detached Concern?: Emotional Socialization in Twenty-First Century Medical Education. osf.io

Wilkinson, Helen & Whittington, Richard & Perry, Lorraine & Eames, Catrin. (2017). Examining the Relationship between Burnout and Empathy in Healthcare Professionals: A Systematic Review. Burnout Research. 6. 10.1016/j.burn.2017.06.003.

Williams, B., Boyle, M., & Earl, T. (2013). Measurement of empathy levels in undergraduate paramedic students. *Prehospital and Disaster Medicine*, *28*(2), 145–149. https://doi.org/10.1017/s1049023x1300006x

Williams, B., Brown, T., McKenna, L., Boyle, M., Palermo, C., Nestel, D., Brightwell, R., McCall, L., & Russo, V. (2014). Empathy levels among health professional students: a cross-sectional study at two universities in Australia. *Advances in Medical Education and Practice*, 107. https://doi.org/10.2147/amep.s57569

Williams, B., Brown, T., McKenna, L., Palermo, C., Morgan, P., Nestel, D., Brightwell, R., Gilbert-Hunt, S., Stagnitti, K., Olaussen, A., & Wright, C. (2015). Student empathy levels

across 12 medical and health professions: an interventional study. *Journal of Compassionate Health Care, 2*(1). https://doi.org/10.1186/s40639-015-0013-4

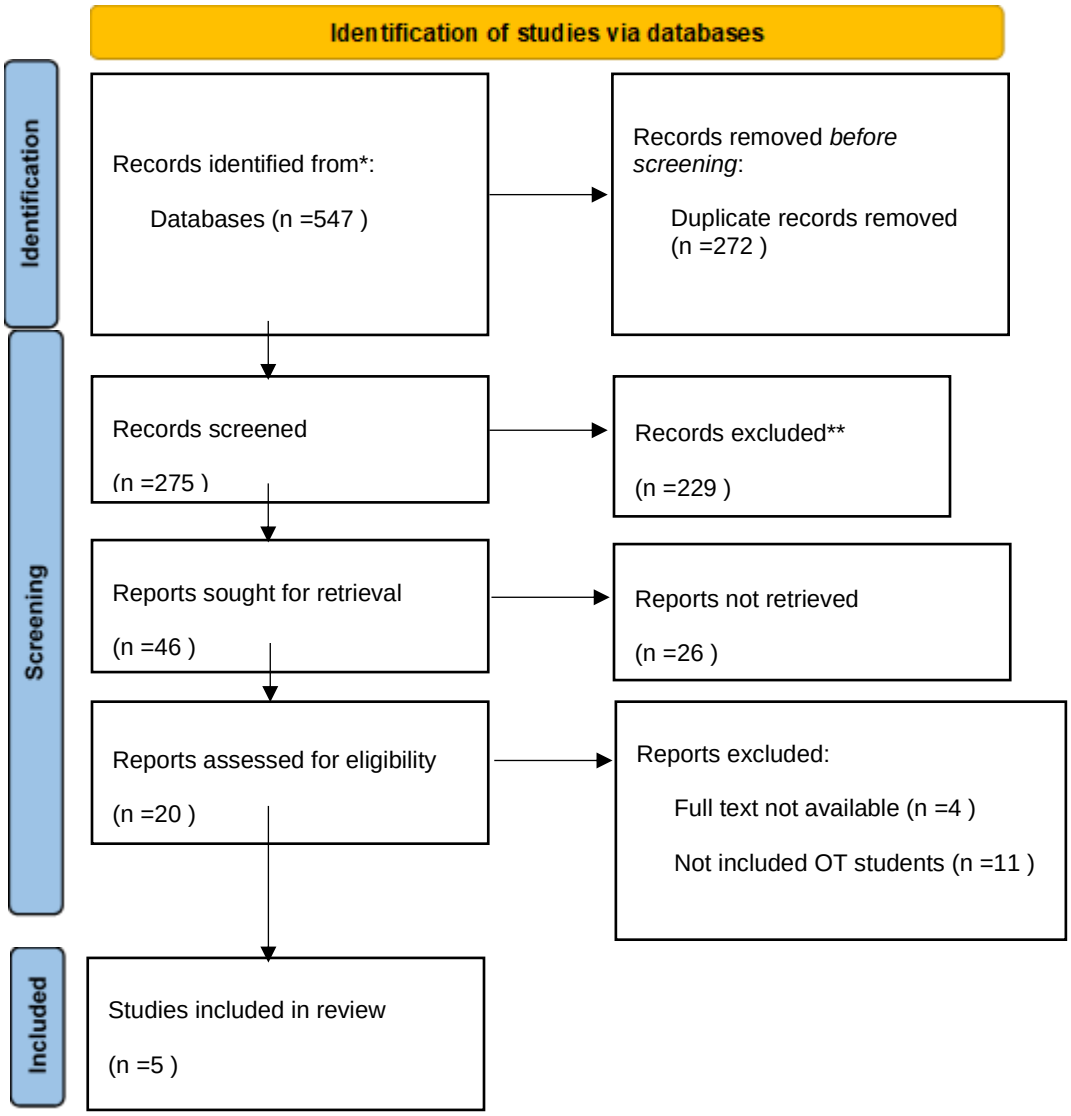
Wise, Bethany & Page, Susan. (1980). Empathy Levels of Occupational Therapy Students. *The American journal of occupational therapy*: official publication of the American Occupational Therapy Association. 34. 676-9. 10.5014/ajot.34.10.676.

World Federation of Occupational Therapists (WFOT). (2016). Minimum Standards for the Education of Occupational Therapists. WFOT. Available from: https://www.wfot.org/resources/new-minimum-standards-for-the-education-of-occupational-therapists

Wündrich, M. & Schwartz, Caroline & Feige, Bernd & Lemper, D. & Nissen, Christoph & Voderholzer, Ulrich. (2017). Empathy training in medical students – a randomized controlled trial. Medical Teacher. 39. 1-3. 10.1080/0142159X.2017.1355451.

Appendices

Appendix A Prisma



Appendix B The questionnaire

استطلاع مستوى التعاطف لدى طلاب العلاج الوظيفي في الجامعات العربية

تقوم الباحثة بإجراء دراسة بحثية بعنوان: استكشاف التعاطف بين طلاب العلاج الوظيفي الجامعيين في الجامعات العربية. الهدف هو تحديد مستوى التعاطف بين طلاب العلاج الوظيفي الجامعيين المسجلين في قسم العلاج الوظيفي في كلية العلوم الطبية المساندة في الجامعات العربية. تتضمن الدراسة استكمال المعلومات الديموغرافية الأساسية ومقياس جيفيرسون للتعاطف المخصص لطلاب العلوم الصحية بالاضافة الى مؤشر التفاعل البين _ شخصي المشاركة اختيارية تماما ويمكنك الانسحاب من الدراسة في أي وقت ,التحليل مجهول بالكامل. لذلك، لا يتطلب منك تقديم اسمك أو أي معلومات تعريفية أخرى.

معلومات ديموغرافية						
الجنس	□ ذكر	□ أنثى				
العمر						
الديانة	□ مسلم	□ مسيحي	□ غير ذلك			
السنة الدراسية	□ الأول	□ الثانية	□ الثالثة	□ الرابعة	□ الخامسة	
بلد الدراسة	□ فلسطين	□ الجزائر				
	□ الاردن	□ تونس				
	□ السعودية	□ سوريا				
	□ سلطنة عمان	□ المغرب				
	□ الكويت	□ لبنان				
ما هو مجال التخصص في العلاج الوظيفي الذي تعتقد أنك تريد الخوض فيه؟	□ اخصائي الاطفال □ الشيخوخة □ الصحة العقلية □ الاصابات الجسدية) الفيزيائية □ غير ذلك □ لم أقرر بعد مجال التخصص					
هل لديك شخص من ذوي الإعاقة في عائلتك؟	□ نعم	□ لا				
هل قمت بالتدريب العملي؟	□ نعم	□ لا	إذا كانت اجابتك نعم , كم عدد التدريبات العملية التي اجتزتها ----------			

- **المقياس الأول: مقياس جيفيرسون للتعاطف المخصص لطلاب العلوم الصحية**

الرجاء اختيار رقم من1-7 لبيان مدى اتفاقك او اختلافك مع اي من الجمل التالية

توضيح: الرقم الاكبر يشير الى مزيد من الاتفاق مع العبارة والرقم الاقل يشير الى شدة الاختلاف مع العبارة

أتفق بشدة 7 6 5 4 3 2

1 أختلف بشدة

الجملة	**1**	**2**	**3**	**4**	**5**	**6**	**7**

1. تفهم المعالج الوظيفي لمشاعر المريض ومشاعرعائلته لا يحسن نتائج علاج المريض	○	○	○	○	○	○	○
2. يطمئن المريض للمعالج الوظيفي الذي يتفهم مشاعره	○	○	○	○	○	○	○
3. من الصعب على المعالج الوظيفي أن يرى الأمور كما يراها المريض	○	○	○	○	○	○	○
4. إدراك المعالج الوظيفي للغة جسد المريض لا يقل أهمية عن التواصل اللفظي معه لتوطيد العلاقة بين المعالج الوظيفي والمريض	○	○	○	○	○	○	○
5. مضاحكة المعالج الوظيفي للمريض في العيادة يحسن نتيجة العلاج	○	○	○	○	○	○	○
6. طبائع الناس مختلفة, لذا من الصعب على المعالج الوظيفي رؤية الأمور كما يراها المريض	○	○	○	○	○	○	○
7. الاهتمام بمشاعر المريض أثناء تسجيل تاريخهم المرضي ليس له أهمية	○	○	○	○	○	○	○
8. الاستماع للتجارب الشخصية للمريض يحسن نتائج العلاج	○	○	○	○	○	○	○
9. أثناء علاج المريض على المعالج الوظيفي أن يحاول تخيل نفسه مكان المريض	○	○	○	○	○	○	○
10. يعتبر تفهم المعالج الوظيفي لمشاعر المريض جزء من العلاج ويقدر المريض هذا التفهم	○	○	○	○	○	○	○
11. الرعاية الصحية للمريض في العيادات تتم بتقديم علاج طبي فقط, لذلك لا تؤثر الروابط العاطفية بين المعالج ومريضه تأثيرا هاما في نتائج العلاج	○	○	○	○	○	○	○
12. سؤال المريض حول ما يحدث في حياته العامة لا يساهم في فهم شكواهم	○	○	○	○	○	○	○
13. على المعالج الوظيفي معرفة ما يفكر فيه المريض وذلك بتحليل الإشارات غير اللفظية ولغة جسد المريض	○	○	○	○	○	○	○
14. ليس للمشاعر أي دور في علاج الأمراض	○	○	○	○	○	○	○
15. التعاطف مهارة علاجية وبدونها فسيكون نجاح المعالج الوظيفي محدود	○	○	○	○	○	○	○
16. تفهم المعالج الوظيفي للحالة النفسية لكلا من المريض وأسرته من أهم ما يقوي العلاقة بين المعالج الوظيفي والمريض	○	○	○	○	○	○	○
17. لتقديم رعاية صحية أفضل للمريض على المعالج الوظيفي محاولة التفكير كما يفكر المريض	○	○	○	○	○	○	○
18. يجب أن لا يتأثر المعالج الوظيفي بالروابط العائلية القوية بين المريض وعائلته	○	○	○	○	○	○	○
19. أنا لا أستمتع بقراءة المقالات الفنية أو غير الطبية	○	○	○	○	○	○	○
20. التعاطف عامل مهم في علاج المريض	○	○	○	○	○	○	○

- **المقياس الثاني: مؤشر التفاعل البين - شخصي**

تبحث العبارات التالية في أفكارك ومشاعرك خلال عدة مواقف متنوعة. وضح إلى أي مدى يصفك كل بند عن طريق اختيار الرقم المناسب كما في المقياس المدرج مقابل كل عبارة عندما تقرر إجابتك قم باختيار الرقم الموجود مقابل كل عبارة. قم بقراءة كل عنصر بعناية قبل الإجابة عليه , أجب بصدق قدر المستطاع

العبارة	**يصفني بشكل جيد جدا** 5	4	3	2	1	**لا يصفني جيدا**
1. لدي احلام يقظة وتخيلات شبه دائمة، عن أمور قد تحدث معي.	○	○	○	○	○	
2. في الغالب لدي مشاعر تعاطف وقلق نحو الأشخاص الأقل حظاً مني.	○	○	○	○	○	
3. احياناً اشعر بصعوبة بأن أرى الأشياء من وجهة نظر "الشخص الآخر."	○	○	○	○	○	
4. أحياناً لا أشعر بالأسف حيال الأشخاص الآخرين عندما يكون لديهم مشاكل.	○	○	○	○	○	
5. أنخرط جداً مع مشاعر الشخصيات الموجودة في الروايات.	○	○	○	○	○	
6. في المواقف الطارئة، أشعر بأنني متخوف ومضطرب.	○	○	○	○	○	
7. أنا في الغالب شخص موضوعي عندما أشاهد فيلم او مسرحية وفي الغالب لا أنسجم فيها بشكل تام.	○	○	○	○	○	
8. أحاول أن أنظر لوجهة نظر الجميع في الخلاف قبل أن أتخذ قرار.	○	○	○	○	○	
9. عندما أرى أن هناك شخص يتم استغلاله، أشعر بأنني اريد ان أحميه بطريقة ما.	○	○	○	○	○	

10. أحياناً اشعر بأنني غير قادر على فعل أي شيء في وسط موقف عاطفي متوتر	○	○	○	○	○
11. بعض الأحيان أحاول أن أفهم أصدقائي عن طريق تخيل كيف ممكن أن تبدو الأشياء من وجهة نظرهم.	○	○	○	○	○
12. بالنسبة لي، من النادر أن أصبح منسجم للغاية في كتاب جيد أو فيلم.	○	○	○	○	○
13. عندما أرى شخصاً متألماً، أميل إلى أن أبقى هادئاً.	○	○	○	○	○
14. عادةً، مصائب الأشخاص الآخرين لا تزعجني كثيراً.	○	○	○	○	○
15. إذا كنت واثق بأنني على حق في شيء ما، لا أصرف الكثير من الوقت لسماع مجادلات الآخرين.	○	○	○	○	○
16. بعد مشاهدة مسرحية أو فيلم، أشعر كأنني واحد من الشخصيات.	○	○	○	○	○
17. التواجد في موقف عاطفي متوتر يخيفني.	○	○	○	○	○
18. عندما أرى أن شخصاً ما يتم التعامل معه بطريقة غير عادلة، لا أشعر بالشفقة اتجاههم احياناً.	○	○	○	○	○
19. في الغالب، أنا فعّال في التعامل مع الطوارئ.	○	○	○	○	○
20. في الغالب أنا أتأثر كثيراً في الأشياء التي تحصل.	○	○	○	○	○
21. أنا أعتقد بأن هناك جانبين لكل سؤال وأحاول النظر لكليهما.	○	○	○	○	○
22. أصف نفسي بأنني شخص رقيق القلب.	○	○	○	○	○
23. عندما أشاهد فيلماً جيداً، أستطيع بسهولة أن أضع نفسي مكان الشخصية الرئيسية	○	○	○	○	○
24. أميل إلى أن أفقد السيطرة خلال الطوارئ.	○	○	○	○	○
25. عندما أكون منزعج من أحد، بالعادة أحاول أن "أضع نفسي في مكانه" لبعض الوقت.	○	○	○	○	○
26. عندما أقرأ قصة أو رواية ممتعة، أستطيع أن أتخيل كيف ممكن أن اشعر إذا كانت أحداث القصة تحدث معي.	○	○	○	○	○
27. عندما أرى شخصاً يحتاج مساعدتي بشدة في موقف طارئ، اشعر بالانهيار.	○	○	○	○	○
28. قبل انتقاد أحد، أحاول أن اتخيل كيف ممكن أن تكون مشاعري لو كنت في مكانهم.	○	○	○	○	○

- هل عندك أي تعليق تود أن تشاركه معنا؟----------

- إذا كان لديك اي تعليق الرجاء اضافته هنا----------

- هل ترغب بمعرفة نتائج هذا الاستبيان؟
  - □ نعم
  - □ لا
- (إذا نعم (اكتب إيميلك هنا)

شكر وتقدير

أتقدم لكم بجزيل الشكر على مشاركتكم ومساهمتكم في تعبئة الاستبيان
في حال رغبتكم بمعرفة المزيد حول هذه الدراسة، يمكنكم التواصل معنا على هذا الإيميل
k.arabalkabiya@student.aaup.edu

Appendix C IRB approval letter

Arab American University
Institutional Review Board - Ramallah

الجامعة العربية الأمريكية
مجلس اخلاقيات البحث العلمي – رام الله

IRB Approval Letter

Study Title: "An Exploration of Empathy Among Undergraduate Occupational Therapy Students at Arabic Universities"

Submitted by: Khawla Ahmad Theeb Arabalkabiya

Date received: 21th December 2023

Date reviewed: 27th December 2023

Date approved: 27th December 2023

Your Study titled **"An Exploration of Empathy Among Undergraduate Occupational Therapy Students at Arabic Universities"** with archived number R-2023/A/3/N was reviewed by the Arab American University IRB committee and was approved on the 27th December 2023.

Sajed Ghawadra, PhD
IRB-R Chairman
Arab American University of Palestine

الجامعة العربية الأمريكية - فلسطين
مجلس اخلاقيات البحث العلمي - رام الله
IRB-R
ARAB AMERICAN UNIVERSITY-PALESTINE
INSTITUTIONAL REVIEW BOARD - RAMALLAH

General Conditions:

1. Valid for 6 months from the date of approval.
2. It is important to inform the IRB-R with any modification of the approved study protocol.
3. The Bord appreciates a copy of the research when accomplished.

الملخص

يلعب التعاطف دورًا حيويًا في العلاج المهني، حيث يمكّن المعالجين المهنيين من إنشاء فهم يركز على العميل لمرضاهم ومتابعة أهداف مهنية وعلاجية هادفة مصممة خصيصًا لكل فرد. ومع ذلك، فإن الافتراض بأن طلاب العلاج المهني يمتلكون بشكل طبيعي القدرة التعاطفية المطلوبة للممارسة الفعالة التي تركز على العميل لا أساس له من الصحة. وبالتالي، يصبح من الضروري تنمية وغرس التعاطف بين طلاب المرحلة الجامعية الأولى قبل بدء العمل السريري للحماية من العوائق المحتملة في تطورهم المهني. على الرغم من أهمية التعاطف في العلاج المهني، هناك نقص واضح في الأدلة المتعلقة بالتعاطف والمواقف تجاه المرضى بين طلاب المرحلة الجامعية في العلاج الوظيفي في الجامعات العربية. وبالتالي، هدفت هذه الدراسة إلى استكشاف مستوى التعاطف وتحديد العوامل المرتبطة به بين طلاب المرحلة الجامعية الأولى في الجامعات العربية.

تم إجراء دراسة رصدية مقطعية على عينة مكونة من 219 طالبًا جامعيًا في العلاج المهني من مختلف الجامعات العربية. تم تقييم مستوى التعاطف باستخدام استبيان إلكتروني يتضمن مقياس جيفرسون للأطباء التعاطف-إصدار طلاب المهن الصحية(JSPE-HPS) ، ومؤشر التفاعل بين الأشخاص (IRI)، ومجموعة قصيرة من الأسئلة الديموغرافية .

تم العثور على مستوى مرضٍ من التعاطف في جميع أبعاد-JSPE-HPS .(11.62) 94.75 IRI .(102-114) 109 Sوكشفت نتائج الدراسة أن الإناث أظهرن تعاطفا أكثر من الذكور. على الرغم من أن درجات JSPE-HPS-S لم تظهر فروقًا كبيرة بين الجنسين بمتوسط درجات 110 (102-115) و104 (97-112) للإناث والذكور على التوالي، أشارت نتائج IRI إلى أن الإناث لديهن مستويات تعاطف أعلى بكثير من متوسط الذكور. درجات 96.24 (11.20) و89.57 (11.70) للإناث والذكور على التوالي.

يعد تعزيز فهم التعاطف في تعليم العلاج المهني أمرًا بالغ الأهمية. سيساعد هذا التقدم في تنمية ممارسي العلاج المهني المتعاطفين والمختصين ثقافيًا، مما يؤدي في النهاية إلى تعزيز جودة الرعاية والرفاهية العامة لمختلف السكان.

الكلمات المفتاحية: التعاطف؛ المرحلة الجامعية؛ العلاج المهني؛ طلاب؛ تعليم؛ مقياس جيفرسون لتعاطف الطبيب، مؤشر التفاعل بين الأشخاص.