Original Research Article

Perceptions of An-Najah University Students Regarding the Challenges of Using SPSS in the Clinical Psychology Major

Dr. Yousef Jaber Alawneh[1*]

[1]Faculty of Humanities and Education Sciences, An-Najah National University, Nablus, Palestine

*Corresponding Author: Dr. Yousef Jaber Alawneh
Faculty of Humanities and Education Sciences, An-Najah National University, Nablus, Palestine

Abstract: The study was qualitative in nature to examine master's students' perceptions of the Clinical Psychology program at An-Najah National University with respect to the challenges associated with the use of SPSS, the statistical software, during the statistics courses as well as in the course of conducting their research projects. It also aimed toward exploring the significant factors that increase the severity of these challenges and documenting the proposed students' solutions to overcome them. The study employed interpretive qualitative methodology in which semi-structured interviews were conducted with a purposive sample of 10 students who had previously experienced usage of SPSS. The findings with thematic analysis revealed five major categories of difficulty, which included: Weak theoretical background in statistics, Technical challenges in operation of software, Barriers related to English terminology, Anxiety and lack of confidence, and limited access to training or academic support. In addition, it was found that the students, where some had prior training or broader exposure to practical side, reported fewer difficulties. Key solutions suggested by the participants towards this end include extra workshops on SPSS skills, inclusion of more hands-on, applied activities in courses, providing resources in Arabic, and establishing departments that will offer consultation on statistical matters and foster collaboration among peers. The study concluded by providing practical recommendations to improve the learning environment, reduce statistical anxiety, and empower students to independently and confidently use SPSS in their academic research.

Keywords: SPSS, Clinical Psychology, Graduate Students, Statistical Challenges, Qualitative Study, An-Najah National University.

INTRODUCTION

Graduate students are mostly seen as competent users of statistical analysis tools, especially specialized software such as that offered by SPSS, which is thought to be a prerequisite competency for carrying out methodologically sound quantitative research. These graduate programs have been most prominent in fields such as psychology, education, and the social sciences. Recently, most of the literature found has again emphasized hands-on learning through SPSS as a necessary addition in programs to equip students with better research capabilities and their improved ability to deal with, analyze, and interpret the data (Alawneh *et al.*, 2023; Al-Ahmad *et al.,* 2023).

In spite of the recognized necessity of SPSS in academic research, empirical studies show graduate students facing multiples particular problems with that software. Range of these difficulties comprises software operational issues which prove somewhat technical hurdles, and cognitive barriers in choosing the right statistical tests to apply and subsequently in interpreting outputs' meaning. For instance, Bourbakh and Amour (2022) in their line of study at University of M'sila, Algeria indicated a number of students' difficulties in analyzing data from surveys using SPSS despite students understanding the importance and necessity of such software in facilitating their research process.

In Jordan, findings by Merji (2018) reported the following: "Students' attitudes towards SPSS at Al-Balqa Applied University were moderately positive." The differences in attitude were significantly different for the humanities students.

Finally, it can be succinctly said that gender difference was not statistically significant, which suggests that the effect of a student's discipline is more than that of demographic variables. A study conducted by Assiri (2022) among master's students at King Khalid University (Saudi Arabia) reported that SPSS competencies of students ranged from being moderate to good but were differentiated in defined skill areas such as data entry, selection of the appropriate analyses, and interpretation of statistical tables. The study proposed additional training workshops to equip students with practical proficiency and minimize their dependence on third-party data analysts.

Of that, Ben Sassi (2018) found that 66% of master's students trained in a statistical software course had little trouble with SPSS. So these students would report having mastered upwards of 95% of the targeted technical skills, reinforcing the value of previous practical preparation in reducing anxiety and prescribing confidence when using the software.

Other studies have delved into psychological hurdles associated with the use of SPSS, especially with respect to statistics-related anxiety. For example, El-Shafie and Badr El-Din (2015) construct a measure to assess statistical anxiety among graduate education students in Egypt. The study found students exhibiting varying levels of anxiety, detrimental to the students' overall performance. This anxiety usually comes from fear of making mistakes while undertaking an analysis or the possibility of misinterpretations of outputs. These findings parallel with Onwuegbuzie (2004) global study, which link statistical anxiety and procrastination in academics. Students who have high anxiety levels are more likely willing to delay doing research tasks and performing poorly in other statistical modules.

Such research suggests innovative teaching methods to remedy the problem. For example, as mentioned by Alawneh, Shadid, and Salman (2024): "We have shown that a self-questioning strategy significantly improved students' research skills in general, including their SPSS competency, when applied to teacher education colleges." Similarly, Abdel Hamid (2022) found that blended learning models that combine theoretical lectures, visual aids, and interactive exercises can lead to measurable improvements in students' economic and technical knowledge.

Most of the literature suggests that problems with "SPSS" aren't simply technical but depend on a combination of cognitive (e.g., poor theoretical background in statistics), linguistic (e.g., face challenges in understanding English terminology), psychologically (e.g., fear of failure), and organizational (e.g., lack of training and/or support) factors. Most researchers, in their studies, concluded that breaking such barriers is possible through interactive environments for learning and systematic training with sufficient institutional support.

Based on this understanding, the present study aims to explore and document the real-life challenges that graduate students in the Clinical Psychology program at An-Najah National University face when using SPSS. It seeks to identify the root causes of these difficulties and compile students' suggested strategies for overcoming them—ultimately offering practical recommendations for improving statistical training at the graduate level.

Research Problem and Questions
Although SPSS has become a staple tool in academic research and is integrated into many graduate-level curricula, practical evidence suggests a notable gap between students' theoretical knowledge of statistical analysis and their ability to apply that knowledge using SPSS. Prior field studies in Arab universities have reported a range of student difficulties, including limited technical skills, inadequate statistical background, and challenges related to language or psychological readiness (Bourbakh & Amour, 2022; El-Shafie & Badr El-Din, 2015; Assiri, 2022).

An-Najah National University is widely recognized as a leading academic institution in Palestine and hosts a growing number of graduate students—particularly in Clinical Psychology—who are required to use SPSS for statistical analysis during coursework and thesis preparation. While theoretical instruction is provided, preliminary feedback and student experiences suggest that many face actual difficulties during the practical application stage. These challenges appear in various forms—ranging from data entry to choosing the correct test or interpreting output—which ultimately hinders the quality and efficiency of their academic work.

The present study emerges from the absence of a systematic diagnosis of these challenges within the Palestinian context. There is also a lack of prior research addressing the specific experiences of Clinical Psychology students at An-Najah University. Most existing studies explore the topic in broader contexts or across different academic disciplines, without delving into the nuances of this particular specialization—which often relies on psychometric instruments and diagnostic tools that require precise statistical handling.

Hence, this qualitative inquiry is designed to explore the personal perceptions of Clinical Psychology graduate students at An-Najah University regarding the challenges they face with SPSS. The study investigates the nature, causes, and academic impact of these difficulties and elicits students' own suggestions for overcoming them. It also seeks to

examine contextual variables—such as year of study, prior statistical knowledge, or the extent of hands-on training—to build a comprehensive understanding of the factors involved.

In this sense, the research fills a notable gap in Arabic-language scholarship by offering grounded insights into students' lived experiences with statistical analysis in psychological research. It also aims to inform the design of more responsive training models and instructional reforms that align with students' actual needs.

Research Questions
1. What are the main challenges that Clinical Psychology master's students at An-Najah National University face when using SPSS for data analysis?
2. What solutions and recommendations do students suggest for overcoming these challenges?
3. What contextual or academic factors (e.g., year of study, statistical background, training hours) are associated with the intensity of these challenges?

Research Objectives
This qualitative study seeks to investigate and analyze the personal perceptions of graduate students in the Clinical Psychology program at An-Najah National University regarding the difficulties they face when using the SPSS statistical software. In light of the growing demand for quantitative analysis tools in psychological and academic research, the study pursues the following objectives:
1. To identify the primary technical, cognitive, psychological, and linguistic difficulties encountered by Clinical Psychology master's students while using SPSS for academic data analysis.
2. To explore students' personal accounts regarding the severity, frequency, and stages at which these difficulties arise—whether during data entry, statistical test selection, or result interpretation.
3. To gather practical recommendations and insights proposed by students themselves to overcome these challenges, thereby building a knowledge base that can inform curriculum design and training programs.
4. To examine the relationship between the severity of SPSS-related difficulties and background variables such as academic year, prior statistical training, number of hours spent practicing with the software, or the quality of academic supervision.
5. To offer actionable recommendations for academic departments and faculty members aimed at enhancing statistical teaching methods and training processes, ultimately improving student performance and reducing dependence on external support.

Significance of the Study
The importance of this research lies in both its theoretical and practical contributions.

From a theoretical standpoint, the study adds to the growing body of literature on educational challenges associated with statistical software usage among graduate students. To the best of the researcher's knowledge, this is the first study to specifically explore the perceptions of An-Najah National University students regarding the use of SPSS, especially within the Clinical Psychology program. As such, it helps bridge a significant research gap within the local Palestinian academic context. Moreover, it either confirms or contrasts with findings from international studies, thereby enriching academic discourse on statistical education and training across cultural settings.

On a practical level, the study provides data-driven insights that can be directly used to improve the educational and training environment for graduate students. Understanding the core difficulties students face with SPSS enables decision-makers—such as faculty in the Clinical Psychology Department or the Deanship of Graduate Studies—to design workshops and training modules that better meet student needs. For example, if students struggle with foundational statistical concepts or with the English terminology in the software interface, the university could offer targeted remedial courses or Arabic-language support materials.

This research also aims to empower instructors of statistics and research methodology by informing them of the most common student difficulties. In doing so, it provides a basis for refining course content, teaching strategies, and student assessment practices. Ultimately, the study serves a broad audience—including students, instructors, and academic administrators—by contributing to the overall enhancement of graduate education in psychology.

Scope and Delimitations
Topical Delimitation:
The study focuses specifically on difficulties related to the use of SPSS for statistical data analysis. It does not examine other challenges that graduate students may face during research—such as writing literature reviews or conducting fieldwork—except where such issues intersect with the use of SPSS. Additionally, the study is concerned with students' self-reported perceptions and experiences, meaning the findings reflect their awareness and subjective impressions rather than objectively measured performance.

Population Delimitation:

The research is limited to master's students enrolled in the Clinical Psychology program at An-Najah National University. It does not include students from other disciplines or doctoral-level candidates. The focus on the master's level is intentional, given that students in this stage actively engage with SPSS through coursework and thesis preparation.

Geographical Delimitation:

The study was conducted at An-Najah National University, located in Nablus, Palestine. Therefore, the findings are specific to this institutional context, which may differ from other universities in terms of software access, computer lab availability, faculty expertise, or support services.

Timeframe Delimitation:

Data collection occurred during the second semester of the 2024–2025 academic year. As such, the study reflects the training experiences, curriculum structure, and software usage patterns relevant to that period. While some future changes may alter the context, the findings offer valuable insights into current practices and student experiences that can inform future improvements.

Definition of Terms

To ensure conceptual clarity, the following terms are defined both theoretically and operationally as they are used in this study:

Students' Perceptions

- *Theoretical Definition:* A student's cognitive and emotional interpretations of a particular educational experience, shaped by prior knowledge, attitudes, and personal encounters (Coetzee & Van der Merwe, 2010).
- *Operational Definition:* In this study, perceptions refer to the subjective views of Clinical Psychology master's students at An-Najah University regarding the challenges they encountered while using SPSS, as captured through open-ended interview responses.

Challenges

- *Theoretical Definition:* Obstacles or barriers that hinder learning or performance, which may be cognitive, technical, psychological, or environmental in nature (Onwuegbuzie, 2004).
- *Operational Definition:* Difficulties mentioned by participants in interviews, including:
- o **Cognitive challenges** – e.g., inability to select the appropriate test
- o **Technical challenges** – e.g., trouble entering data or running tests
- o **Linguistic challenges** – e.g., difficulty understanding English terms
- o **Psychological challenges** – e.g., anxiety or lack of confidence in handling the software

SPSS (Statistical Package for the Social Sciences)

- *Theoretical Definition:* A widely-used statistical software package for quantitative analysis in the social sciences, offering tools for descriptive and inferential statistics, regression, hypothesis testing, and data visualization (George & Mallery, 2020).
- *Operational Definition:* The version of SPSS used by An-Najah University graduate students during the 2024–2025 academic year, encompassing its user interface, functions, menus, and output formats.

Practical Use of SPSS

- *Theoretical Definition:* The hands-on execution of statistical analysis procedures using SPSS after data collection has been completed.
- *Operational Definition:* In this study, it refers to the process of data entry, variable coding, selecting the right statistical tests, running commands, interpreting output tables, and generating graphical representations.

Clinical Psychology

- *Theoretical Definition:* A branch of psychology focused on understanding, diagnosing, and treating psychological disorders through therapeutic and psychometric methods (APA, 2023).
- *As an Operational Definition, Clinical Psychology Master's Program of the Graduate School of An-Najah University, comprises courses in research methods, applied statistics, and psychological assessment. This study is about students' experiences with SPSS with regard to these academic practical components..*

METHODOLOGY

Research Design

Moreover, this study employed a qualitative interpretive methodology, which is a form of qualitative research best suited for exploring subjective experiences and personal perceptions of postgraduate students regarding the types of

difficulty they face when using SPSS in analyzing their research data. It makes a "thorough understanding of every educational and social phenomenon through lived experiences of participants in their narrative expressions" not imposing any pre-formulated hypotheses or quantitative variables (Creswell, 2014).

Within this frame of thinking, case study design was used to focus more on a specific instance that receives in-depth exploration: the experiences of master students in Clinical Psychology at An-Najah National University. It is widely acceptable that case studies generate rich and nuanced qualitative data, especially when the phenomenon represented is complex and multifaceted, such as practical use of SPSS in psychological research settings (Yin, 2018).

Study Population and Sample

The study population consisted of all Clinical Psychology master's students enrolled in the Graduate School of An-Najah National University during the 2024/2025 academic year. According to official departmental records, this population included approximately 15 students, distributed across two academic cohorts (first-year and second-year students).

Given the small size of the population and the study's in-depth case-oriented approach, purposive sampling was used to select participants. The researcher chose 10 students (both male and female, from both years of study) who had direct experience using SPSS. This ensured a diversity of perspectives, including those still enrolled in coursework and others in the thesis-writing stage. All participants had used SPSS either in the "Applied Statistics" course during their first year or while analyzing data for their final projects in the second year.

Participant	Gender	Age	Year of Study	Notes
1	Female	23	First Year	
2	Female	22	First Year	
3	Female	24	First Year	
4	Female	23	First Year	
5	Female	25	Second Year	
6	Female	24	Second Year	
7	Male	26	Second Year	
8	Female	23	Second Year	
9	Male	27	Second Year	
10	Female	25	Second Year	

As shown, the sample included 6 females and 4 males, reflecting the gender distribution typical of psychology programs, where female enrollment tends to be higher. Participants' ages ranged from 22 to 27 years, with an average age of approximately 24.5. The even distribution between first- and second-year students allowed for the inclusion of insights from those currently taking statistics courses and those actively working on their theses.

Research Instrument and Trustworthiness

To meet the study's qualitative and exploratory goals, the researcher used semi-structured interviews as the primary data collection tool. This method allows for open-ended, flexible discussions, enabling participants to articulate their experiences in depth without the constraints of closed or predetermined response formats.

The interview guide was carefully designed to align with the study's main themes. It covered four primary dimensions:
1. The nature of the difficulties students faced while using SPSS.
2. Students' suggestions for overcoming those difficulties.
3. Personal and academic factors related to the intensity of challenges.
4. The academic and psychological effects of these difficulties.

The interviews included a variety of question types—introductory questions (e.g., "Tell me about your first experience using SPSS"), exploratory questions (e.g., "Which phase was most difficult for you during data analysis?"), and analytical questions (e.g., "How did these difficulties affect your academic progress or mental state during research?").

Interviews began with a brief overview explaining the study's goals, ensuring participants of confidentiality, and informing them of their right to withdraw at any time. The conversations followed a flexible format, allowing the researcher to delve deeper using probing questions (e.g., "Why do you think that was the case?" or "Could you elaborate?"), which encouraged participants to share detailed, context-rich accounts.

All interviews were conducted individually in a quiet room on campus, each lasting between 30 and 40 minutes. With participants' consent, interviews were audio-recorded and later transcribed verbatim for qualitative analysis using thematic analysis.

Validity of the Research Instrument

To ensure the credibility and validity of the interview guide, both face validity and content validity were assessed. Initially, the guide was developed based on an extensive review of related literature and previous studies. It was then submitted to a panel of three academic experts in psychology and research methodology from the Graduate School at An-Najah University. All reviewers had extensive experience in teaching statistics and supervising master's theses.

Reviewers evaluated the guide based on specific criteria, including clarity of wording, appropriateness of the questions to the study's objectives, and coverage of the four intended dimensions (challenges, suggestions, influencing factors, academic/psychological impact). One reviewer recommended adding a dedicated question about language-related challenges—such as the difficulty of interpreting SPSS's English terminology—which was subsequently incorporated into the guide.

Another expert suggested rewording some questions to encourage deeper, more reflective responses. The final version of the interview guide was thus revised to include more culturally and linguistically appropriate phrasing and to combine overlapping items where necessary. Following these modifications, the expert panel agreed that the revised guide was well-aligned with the study's objectives and capable of generating high-quality, insightful data.

Reliability and Analytical Consistency

As this is a qualitative study, reliability is not assessed through traditional statistical metrics such as Cronbach's alpha. Instead, reliability was established through analytical consistency, ensuring that the interpretation and coding of qualitative data were trustworthy and replicable.

After transcribing the interview recordings, the researcher conducted an in-depth reading of all responses and developed an initial coding scheme. This list of codes represented recurring themes such as types of difficulties, student suggestions, and influential factors. The researcher allowed flexibility in the coding process to accommodate unexpected insights.

To check inter-coder reliability, the researcher collaborated with an independent peer familiar with qualitative data analysis. This peer was provided with the initial codebook and asked to code the same ten transcripts independently. After completion, the two sets of coded data were compared, and agreement was measured using Holsti's formula:

$R = 2M / (N1 + N2)$
M = number of coding units agreed upon
N1 and N2 = total coding units identified by each coder

The resulting agreement coefficient was 0.87, which is considered high and acceptable for qualitative research (values above 0.80 are generally viewed as strong indicators of reliability).

To further strengthen trust in the coding process, the researcher conducted an intra-coder reliability test. Two interviews were re-coded two weeks after the initial analysis without reviewing previous codes. The results showed a very high degree of consistency, confirming the stability of the researcher's analytical decisions.

Based on these rigorous validation and reliability checks, the semi-structured interview tool demonstrated a high level of methodological soundness. It reliably captured the nuanced experiences of students and provided a robust foundation for the thematic analysis and the study's conclusions.

FINDINGS

This section presents the findings of the study in relation to the three research questions. Each subsection includes a summary table outlining the thematic categories and frequency distributions, followed by a detailed narrative analysis supported by participant quotes and references to relevant literature.

Research Question 1: What difficulties do students face when using SPSS?

Analysis of the interviews revealed that nearly all participants encountered some form of difficulty when using SPSS, although the type and intensity of these challenges varied among individuals. The main categories of difficulties are summarized in Table 1 below:

Table 1: Key Difficulties Encountered by Clinical Psychology Students in Using SPSS (N = 10) *Participants could report more than one difficulty. Percentages exceed 100% accordingly*

Type of Difficulty	Frequency	% of Sample
Weak theoretical background in statistics	6	60%
Technical issues with data entry and commands	4	40%
Language barrier (English terms in software interface)	5	50%
Statistics-related anxiety and low self-confidence	3	30%
Lack of practical training or institutional support	4	40%

The most commonly cited challenge was a weak foundation in statistics, with 60% of students reporting difficulties in understanding key concepts or selecting the appropriate statistical test. One student remarked, "I feel confused when asked to choose the right test—I don't know when to use a t-test, ANOVA, or other tests." This reflects a deficiency in prior theoretical preparation.

Merji (2018) similarly noted that students in the social sciences often lack adequate statistical training at the undergraduate level, which limits their ability to handle complex analyses in graduate programs. Khaled *et al.*, (2022) also emphasized that failure to understand the relationship between variable types and appropriate tests often leads to incorrect analyses and invalid results.

Forty percent of participants reported technical issues using SPSS, particularly during data entry and variable coding. One student stated, "I didn't know how to code nominal variables into numbers—I figured it out only after a long process of trial and error." This type of challenge was more common among first-year students, suggesting that limited hands-on experience plays a key role.

Bouhafs (2022) revealed the students face major difficulties with the SPSS interface due to a lack of practical training. This clearly signifies that more hands-on work should be integrated into the curriculum. Fifty percent of the sample indicated the language barrier, especially the English terminology used in SPSS menus and output, as a major impediment to study. One participant said: "I didn't understand what 'Levene's Test' meant in the ANOVA output—I had to translate it myself." Another said: "The English terms distract me; I wish there were an Arabic version, or at least a simplified guide.""

Although few studies have addressed the language issue specifically in the SPSS context, research on digital learning tools (e.g., Shetawi *et al.*, 2020) suggests that language barriers can significantly impact students' ability to use educational software effectively.

It was reported by thirty percent of the participants that they were experiencing stress or fear related to the use of SPSS. One participant shared: "Every time I open SPSS, I'm afraid I'll make a mistake and ruin my thesis results."This form of statistical anxiety is often linked to low self-confidence and can discourage students from engaging in analysis independently.

El-Shafie and Badr (2015) identified statistical anxiety as a significant psychological barrier that impairs both learning and performance. Their findings indicated that many students avoid analysis altogether and instead rely on external consultants.

Forty percent of the sample cited insufficient training or lack of ongoing support. One student noted: "During the course, I didn't grasp everything—I needed extra workshops to practice using SPSS, but none were available." Another added: "I faced a problem with variables, and no one could help me, so I had to search on YouTube."

These findings align with Khraibeh *et al.*, (2023), who emphasized the need for practical support mechanisms beyond the classroom—such as help sessions and peer consultations—especially in technical subjects like statistics.

Research Question 2: What suggestions do students propose to overcome SPSS-related difficulties?
Participants offered a variety of practical and insightful solutions to the challenges they experienced. Their suggestions are summarized in Table 2:

Table 2: Master's Students' Suggestions for Addressing SPSS-Related Difficulties *Participants could suggest more than one solution. Percentages exceed 100% accordingly*

Suggested Solution	Frequency	% of Sample
Additional training workshops focused on SPSS	7	70%
More applied content in statistics courses	5	50%
Arabic-language support materials (guides, videos)	4	40%
Statistical support services (mentors or help centers)	3	30%
Peer learning and collaborative study groups	2	20%

Most participants (70%) emphasized the need for intensive SPSS training workshops, particularly before thesis work. One student suggested: "We really need a full week of focused, practical SPSS training using real datasets."

This aligns with Khaled *et al.*, (2022), who recommended integrating SPSS workshops into academic programs to enhance students' technical skills and reduce dependence on external analysts.

Half of the sample (50%) recommended increasing the practical content in statistics courses, such as by requiring students to complete SPSS-based projects. One student explained: "If we had to analyze a research project using SPSS at the end of the course, it would be incredibly helpful."

Forty percent suggested developing Arabic-language materials—such as simplified manuals or instructional videos—to help students better understand SPSS concepts and functions. One participant noted: "I struggled with some terms—if there were Arabic guides, I could have understood faster."

Merji (2018) also stressed the importance of adapting instructional materials to students' linguistic and cultural backgrounds to facilitate comprehension.

Thirty percent of students advocated for statistical support services, such as assigning teaching assistants (TAs) or creating a dedicated consulting unit. "Having someone to consult when I'm unsure about interpreting results would make a big difference," one participant said.

Such recommendations are echoed by Khraibeh *et al.*, (2023), who noted the importance of one-on-one academic support in boosting students' confidence and analytical precision. Peer learning, although mentioned less frequently (20%), was another suggestion. Two students proposed creating study groups or online fora for discussing SPSS-related issues. As one put it, "Sometimes my classmate helps me with a step I don't understand—and vice versa."

El-Shafie and Badr (2015) noted that collaborative learning environments can build student confidence and foster independent learning—especially in technical subjects like statistical analysis.

5.3 Research Question 3: What factors are associated with the intensity of these difficulties?
Three key factors emerged from students' responses: academic year, prior statistical background, and the number of hours of hands-on SPSS training. These are detailed in Table 3:

Table 3: Factors Influencing the Intensity of SPSS-Related Difficulties (N = 10) *Participants could mention more than one factor*

Factor	Frequency	% of Sample
Academic year (1st vs. 2nd)	6	60%
Prior statistical coursework	5	50%
Hours of hands-on SPSS use	7	70%

Sixty percent of students indicated that their academic year played a role in how comfortable they felt using SPSS. Second-year students, having used the software in actual thesis work, expressed greater confidence. One remarked: "I was afraid of SPSS at first, but using it for my thesis helped me overcome my fears."

In contrast, first-year students reported lower confidence levels due to limited practical exposure. Khaled *et al.*, (2022) found that frequent real-world application reduces statistical anxiety and enhances skills.

Half of the participants emphasized the importance of prior exposure to statistics, either through undergraduate coursework or additional classes. One student said: "I took an extra statistics course during my bachelor's, which really helped me understand the tests—unlike others who struggle to distinguish between them."

Seventy percent of students cited the number of hours spent using SPSS as the most decisive factor. One participant shared: "After attending an external training, I was able to complete most tasks confidently. Before that, I was hesitant to even open the software."

These findings support Bouhafs (2022), who reported that students with practical SPSS experience were far more capable of conducting independent research analysis.

DISCUSSION

The aim of this discussion is to interpret the findings within the framework of prior literature and to draw out underlying implications that may not be immediately visible. The results of the study reinforce many of the concerns raised in the scholarly literature on statistical education, while also highlighting specific issues that pertain to the context of Clinical Psychology students at An-Najah National University.

Variety and Interconnectedness of Challenges

The study found that students' difficulties with SPSS are not singular or isolated but instead span multiple dimensions—cognitive (lack of statistical understanding), technical (limited software skills), linguistic (challenges with English terminology), psychological (fear and anxiety), and organizational (lack of structured support). The profile of barriers reveals a rather complex view of the problem: it does not merely concern software usability, but the encumbering effect on learning from a wider educational ecosystem.

Systemic learning models consider that student performance emanates from curriculum, prior knowledge, teaching approach, learning environment, and support (Gagne, 1985) acting in an interplay. Thus, resolving these problems requires a multi-level response: revisiting course design, enhancing hands-on study, providing psychological and technical support, and building a more inclusive and responsive learning environment. These conclusions corroborate works by Ben-Zvi & Garfield (2008), who argued for an integrated approach in teaching statistics to social science students.

The Central Role of Practical Training

The findings solidly established that practical experience was crucial for SPSS development. More exposure to real data and applied exercises seemed to quell anxiety and foster greater self-efficacy among students. Hands-on practice hours showed the strongest and significant association with lower ratings of difficulty, collapsing 70% of response rate to that effect from the third research question.

Ben Sassi (2018) and Asiri (2022) have given evidence to curb technical anxiety and avowal of statistical competence among practical-trained students. Within this argument lies the constructivism principle of project-based learning, which emphasizes learning by doing and simulating authentic research experiences instead of rote memorization.

Contextual Factors Shaping Difficulty

Three contextual factors emerged from the third research question: the student's academic year, past exposure to statistics, and extent of practical SPSS experience.
- Academic year: Less difficulty was reported by second-year students directly using SPSS for their thesis work. In comparison, first-year students spoke of greater anxiety and uncertainty highlighting real-world engagement as so important in reducing the feeling of fear.
- Statistical background: Statistically adept students interpreted their output more efficiently in choosing tests; this went along with the findings by Merji (2018).
- Training hours: Obviously the chance afforded to use SPSS hands-on is the most quoted factor in competence of sorts, thus the strongest of the three predictors coming into view. This backs Zhou *et al.*, (2021), who found that repeated exposure and authentic data exercises promoted performance among Chinese graduate students.

This just derives more insistence that a differentiated approach matters to recognize the various levels of institutional backgrounds and experience among its students. In Coetzee & Van der Merwe (2010), targeted instructional design meeting the learners' unique profile and needs was emphasized.

Institutional Support and the Instructor's Role

There was a revelation about a significant shortage of institutional support structures. The students seemed to want more academic mentors, teaching assistants, and learning materials translated into Arabic-an approach that goes with the global trend of extended academic support. Studies such as Onwuegbuzie (2004) have highlighted the value of psychologically safe environments in reducing statistical anxiety, particularly when paired with empathetic and participatory teaching styles.

This positions the instructor not merely as a lecturer, but as a facilitator, coach, and emotional support figure. Students pointed out that a professor's approach can either build confidence or amplify stress. Thus, faculty development in the pedagogy of statistical computing—especially through SPSS—is essential. This recommendation is consistent with guidelines from organizations like the American Statistical Association (ASA).

Student Proposals as a Roadmap

One of the most encouraging outcomes of this study was the practicality of the students' suggestions. Rather than simply describing problems, they proposed feasible, campus-based solutions such as training workshops, more applied coursework, Arabic learning materials, and peer-led study groups. This indicates a high level of meta-cognitive awareness and suggests that students are not only aware of their challenges but also motivated to overcome them when given the opportunity and support.

Similar initiatives have been successfully implemented elsewhere. For example, King Khalid University introduced supplementary SPSS courses in response to student assessments, with measurable improvements in competence (kku.edu.sa). Likewise, universities in Cairo and Jordan have established statistical support units that reduced reliance on external consultants and improved research quality.

Positioning the Results in a Global Context

The findings resonate with international literature on statistical challenges faced by students in psychology and related fields. Onwuegbuzie (2004) found that statistics is a common source of anxiety, and that addressing it requires pedagogical and structural reform. Zientek *et al*., (2013) emphasized that a single positive experience with SPSS can shift a student's entire orientation toward quantitative research.

This suggests that the challenges uncovered in this study are not unique to An-Najah University, but rather part of a broader global call to modernize statistical education in the social sciences—especially by tailoring it to students' real-world research needs and cognitive profiles.

RECOMMENDATIONS

In light of the findings and their implications, the study offers the following practical recommendations to improve SPSS training for graduate students:

1. Introduce a dedicated SPSS lab course or intensive workshop, scheduled before students begin thesis data analysis, using real datasets to simulate authentic research.
2. Augment the practical component in existing statistics courses through applied projects, case studies, and direct assessments based on SPSS.
3. Develop Arabic-language support materials by including simplified guides, instructional videos, and bilingual explanations during class lectures to lessen cognitive load
4. Establish a university-based statistical support unit, either as a stand-alone center or via trained teaching assistants, with personalized consultations for graduate students.
5. Encourage peer-learning through student-led study groups, academic clubs, or online discussion forums supervised by academic staff.
6. Address statistical anxiety by awareness seminars, sharing sessions with successful alumni, and encouraging positive reinforcement by faculty members.
7. Simplify and localize content, for instance, through dual-language interfaces or glossaries for students unversed with statistical terminology.
8. Conduct consistent evaluation of the effectiveness of SPSS training by applied assessment and feedback from alumni regarding development of skills and improvements for the future.

CONCLUSION

This study affirms that equipping graduate students with SPSS skills is not merely a technical goal but a strategic investment in research quality. The competence of researchers is inseparable from the tools they use, and the more fluently students can apply analytical methods, the stronger and more credible their scholarly work will become.

By identifying the types of challenges faced, understanding their causes, and foregrounding student-generated solutions, this study offers a roadmap for institutions seeking to enhance quantitative research training. It is the researcher's hope that An-Najah National University—and similar institutions—will consider these findings and recommendations as part of a broader commitment to educational excellence and research innovation in the Arab world.

REFERENCES

- Alawneh,Y.(2022). Role of Kindergarten Curriculum in Instilling Ethical Values among Children in Governorates of Northern West Bank, Palestine, Dirasat: Educational Sciences,49(3),360-375.
- Al-Ahmad, S., Al-Dlalah, M., Al-Momani, T., Barakat, S., Kaddumi, T., Alawneh, Y., & Al-Zboun, M. (2023). Effectiveness of e-learning in Palestinian and Jordanian universities from the viewpoint of faculty members. *Journal of Southwest Jiaotong University*, 58(1), 463–472. https://doi.org/10.35741/issn.0258-2724.58.1.42
- Assiri, A. A. (2022). Measuring statistical analysis skills among master's students using SPSS. *Journal of the Faculty of Education, Sohag University*, (102), 139–176. https://edusohag.journals.ekb.eg/article_282521.html
- Ben Sassi, A. (2018). Difficulties in learning statistical software among psychology students at Ouargla University. *The Researcher in Human and Social Sciences*, (34), 251–266. https://search.shamaa.org/FullRecord?ID=259819
- Bourbakh, R., & Amour, A. (2022). Difficulties faced by graduate students using SPSS: A field study in M'sila University. *Res Militaris*, 13(2), 333–358. https://zenodo.org/record/6984861
- Coetzee, S., & Van der Merwe, P. (2010). Industrial psychology students' attitudes towards statistics. *SA Journal of Industrial Psychology*, 36(1), 1–8. https://doi.org/10.4102/sajip.v36i1.849
- El-Shafie, M., & Badr Eldin, M. T. (2015). Validity and reliability of the statistical anxiety scale. *Scientific Journal of Physical Education and Sports Sciences – Helwan University*, 74(1), 268–291. https://zenodo.org/record/3900052
- Merji, D. S. (2018). Attitudes of students towards using SPSS in research courses. *Journal of the Faculty of Education, Tanta University*, 72(1), 813–828. https://mkmgt.journals.ekb.eg/article_47191.html
- Onwuegbuzie, A. J. (2004). Academic procrastination and statistics anxiety. *Assessment & Evaluation in Higher Education*, 29(1), 3–19. https://doi.org/10.1080/0260293042000160384
- King Khalid University. (2022). Researcher at the university recommends teaching SPSS as a compulsory course in educational institutions. *University Media Center – King Khalid University*. https://kku.edu.sa/en
- Alawneh,Y., Al-Momani,T., Salman,F., Alkhwaldeh,A., Al-Dlalah,M., Kaddumi,T. (2023). The state of musically gifted students in Palestine: a case study, Res Militaris,13(2). 2058-2069.
- Alawneh,Y., Sleem,H., Al-Momani,T., Salman,F,. Al-Dlalah,M., Kaddumi,T., Kharashqah,w.(2023) Strategic Pioneering And Its Connection To Faculty Members' Administrative Creativity At Palestinian And Jordanian Universities, Journal of Namibian Studies,34(Special Issue 1),808-828.
- Alawneh,Y. Al-Momani,T., Salman,F,. Al-Ahmad,S,. Kaddumi,T., Al-Dlalah,M. (2023). The Extent of the Prevalence of Pronunciation Problems among Students of the First Primary Stage in the Point of View of their Teachers and Treatment Methods, Educational Administration: Theory and Practice,29(3),19-33.
- Alawneh,Y., Al-Momani,T., Salman,F., Kaddumi,T.,Al-Dlalah,M. (2023). A Detailed Study Analysis of Artificial Intelligence Implementation in Social Media Applications.2023 3rd International Conference on Advance Computing and Innovative Technologies in Engineering (ICACITE) DOI: 10.1109/ICACITE57410.2023 12-13 May 2023.
- Alawneh,Y. Al-Momani,T., Salman,F,. Al-Ahmad,S,. Kaddumi,T., Al-Dlalah,M. (2023). The Extent of the Prevalence of Pronunciation Problems among Students of the First Primary Stage in the Point of View of their Teachers and Treatment Methods, Educational Administration: Theory and Practice,29(3),19-33.
- Alawneh,Y. Shadid,R. Salman,F(2024)T he Effectiveness Of The Self-Questioning Strategy In Developing Scientific Research Skills Among Students Of The Faculty Of Education At Israa University,Educational Administration: Theory and Practice,30(5),810-825-33.
- Alawneh,Y., Al-Momani,T., Salman,F., Alkhwaldeh,A., Al-Dlalah,M., Kaddumi,T. (2023).The state of musically gifted students in Palestine: a case study, Res Militaris,13(2). 2058-2069.
- Abu Shkheedim,S., Alawneh,Y., Khuwayra,O.,Salman,F., khayyat,T.(2022). The Level Of Satisfaction Of Parents Of Students With Learning Difficulties Towards Distance Learning After The Corona Pandemic, NeuroQuantology,20(19),1299-1311.
- Alawneh,Y., Ashamali,M., Abdel-Hassan,R., Al-khawaldeh,S., Engestroom,y.(2022) Degree Of Use Of E-Learning Science Teachers In Public High Schools In During The Corona-Covid 19 Pandemic, Journal of Positive School Psychology,6(2), 1060-1070.
- ALrashidi,N,. Sahib,R,. Alawneh,Y,.Alawneh,A. (2023). Post-Pandemic Higher Education: Arabic Universities, Elementary Education Online,22(2),1-11.
- Al-Ahmad,S., Al-Dlalah,M., Al-Momani,T., Barakat,S., Kaddumi,T., Alawneh,Y,. Al Zboun,M.(2023) effectiveness of e-learning in Palestinian and Jordanian universities from the viewpoint of faculty members Perspective, Journal of Southwest Jiaotong University ,58(1),463-472.
- Alawneh,y., abu shokhedim,s., al-khazalah.f.(2022). Trends of teachers with handicapped towards the e-learning program at basic education in schools during covid-19, journal of positive school psychology,7(6)1876-1886.
- Abu Shkheedim,S., Alawneh,Y., Khuwayra,O.,Salman,F., khayyat,T.(2022). The Level Of Satisfaction Of Parents Of Students With Learning Difficulties Towards Distance Learning After The Corona Pandemic, NeuroQuantology,20(19),1299-1311.

- Alawneh,Y.(2022). Role of Kindergarten Curriculum in Instilling Ethical Values among Children in Governorates of Northern West Bank, Palestine, Dirasat: Educational Sciences,49(3),360-375.
- Alawneh,Y., Al-Shara'h,N. (2022) Evaluation of the e-learning experience in Palestinian universities during the Corona pandemic "in light of some quality standards of the Jordanian Higher Education, Journal of the College of Education (Assiut),38(2.2) 181-204
- Alawneh,Y. Al-Momani,T., Salman,F,. Al-Ahmad,S,. Kaddumi,T., Al-Dlalah,M. (2023). The Extent of the Prevalence of Pronunciation Problems among Students of the First Primary Stage in the Point of View of their Teachers and Treatment Methods, Educational Administration: Theory and Practice,29(3),19-33.
- Al Khawaldeh,S., Alawneh,Y., Alzboun,M.(2022)., the availability of quality standards for the construction of science achievement tests from the point of view of the examination committees, Journal of Hunan University（Natural Sciences),49(9),1233-1247.
- Alawneh,Y., Ashamali,M., Abdel-Hassan,R., Al-khawaldeh,S., Engestroom,y.(2022) Degree Of Use Of E-Learning Science Teachers In Public High Schools In During The Corona-Covid 19 Pandemic, Journal of Positive School Psychology,6(2), 1060-1070.
- Alawneh,Y., Al-Shara'h,N. (2022) Evaluation of the e-learning experience in Palestinian universities during the Corona pandemic "in light of some quality standards of the Jordanian Higher Education, Journal of the College of Education (Assiut),38(2.2) 181-204
- Alawneh,Y., Abualrub,D., Jbara,L.,(2021)Behavioral Phenomena Common Among Kindergarten Students In Nablus Governorate From The Point Of View Of Principals And Teachers, Turkish Journal of Physiotherapy and Rehabilitation, 32, (3)231-247.
- Alawneh,Y., Al-Shara'h,N. (2022) Evaluation of the e-learning experience in Palestinian universities during the Corona pandemic "in light of some quality standards of the Jordanian Higher Education, Journal of the College of Education (Assiut),38(2.2) 181-204.