

# **Requirements for Using Advanced Statistical Methods in Social Work Research**

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**Abstract:**

It should be emphasized that employing statistical methods is one of the most important necessities for social research, especially in social work, as it gives a scientific character to academic studies in social work research. Theses and scientific research in which researchers use statistical methods in a way that is inconsistent with the nature of the data and results of those theses and scientific research.

After reading many writings, dissertations, and literature, and looking at the results of many related kinds of research, the two researchers settled on studying the requirements for using advanced statistical methods in social work research. This is accomplished by focusing on the requirements related to knowledge of advanced statistical methods, as well as the statistical skills to be used in social work research and demonstrating some common errors in statistical methods in social work.

**Keywords:** statistical methods - social work research.

**Introduction**

Data are the building blocks of statistics. Without data, you cannot use statistical analysis to learn about your clients or demonstrate the effectiveness of an intervention. Understanding what type of data you have and its limitations will help you comprehend the populations the data describe. Once you understand the data you can collect, you can better learn about your clients or the efficacy of a policy or program (Batchelor, 2020, p. 7).

Monitoring research and studies in the field of humanities in general and social work as a whole, it can be noted that the analysis and interpretation of data are affected by several factors. These factors are related to the extent of researchers' knowledge in the field of social work and the appropriate statistical methods for analyzing the data of their research and studies, as well as their degree of understanding of statistics as symbols of the phenomena behind them. With appropriate statistical methods and a deep understanding of the nature of the data related to their study, this will lead to misleading, unhelpful, and similar results that cannot be generalized. Therefore, the researcher tended to put forward his current research to determine the nature of the requirements and techniques of statistical methods in social work research.

It can be emphasized that statistical methods and how to use them are very important, especially since statistics, in general, is a

necessary and important method for introducing accuracy and objectivity in all its different types and fields. Research and studies carried out by researchers in social work must use statistical methods that are consistent with the nature of their studies. Research and studies in which researchers use statistical methods are inappropriate to the nature of the data of these research and studies.

In the researchers' estimation, there are some social work researchers who use parametric statistical methods when addressing the hypotheses of their studies. It was preferable, according to statistical criteria and criteria, to use non-parametric statistics., With the increase in the numbers and patterns of research in social work (exploratory research - descriptive research - evaluative research - professional intervention measurement research), which were approved by the various social work faculties in the Arab Republic of Egypt, the need increases. Developing advanced scientific perceptions of the nature of the requirements for using advanced statistical methods in social work research, as well as presenting the most common mistakes in using statistical methods in social work research and studies, and working on developing some guidelines, rules, and recommendations can be relied upon and would work to reduce the emergence of some errors in future research and studies in social work.

In the light of the above, the researchers identified their topic in presenting the nature of the requirements for employing advanced statistical methods in social work research and studies.

### **First: Scope of the study**

Understanding statistics is necessary if you are to be a vigilant consumer of information, both for yourself and your clients. Data analysis is used in everything from deciding whether someone can receive a loan to what sentence someone may receive when convicted of a crime. Therefore, social workers, especially those who work with marginalized populations, must understand how data and statistics are being used to be better advocates for their clients .(Batchelor, 2020, p. 2)

The use of statistical methods is one of the most important necessities for social research, especially in social work, as it gives a scientific character to academic studies, including master's and doctoral dissertations, as the observer of these studies and research finds that there are common errors in preparing these researches. The majority

of those errors fall in the selection of statistical methods, as well as failures in statistical analyses (Masani, 2018).

It must be emphasized that statistics has a close relationship with most of the sciences, especially social sciences, as it is known that field research in the social sciences is an essential need for statistical methods to describe, analyze and interpret phenomena, including social ones. Master's studies are fraught with several defects, including common errors in how to use statistical methods and tables, analyses, and conclusions, and the possibility of linking statistical results and indications to theoretical frameworks (Dalalah, 2022).

Hence, there are many statistical methods in terms of being parametric and non-parametric, as each statistical method has specific assumptions. We depend on the validity of the analysis and the extent of confidence in its results on the extent to which these assumptions are achieved. The distribution of data and the level of the variable or variables represented by the distribution determine the appropriate statistical method. With the increase in social sciences research in general and social work research in particular, the need for employing different statistical methods increases (Al-Hamdhal, 2018).

Researchers estimate that there is a need to set many requirements for the use of statistical methods in social work research, to reduce errors in future research. Many specialists believe that the misuse of statistical methods by researchers may inevitably lead to many mistakes. Similarly, this can be predicted by listing the results of previous studies (Hassan, 2020). It is worth noting that the process of collecting data by various means and various measures in social work research is not an end that researchers seek, but rather a means to achieve certain goals. In other words, the work of researchers in social work does not end when collecting data, but starts from it. Then, the ultimate goal of choosing the appropriate means of data collection is obtaining sufficient and accurate data and information that serve the research and helps in studying the problem and finding appropriate solutions to it. A distinguished researcher can invest it in the most appropriate way, as this data may fall into the hands of researchers who are not proficient in the necessary research skills in the analysis and interpretation of this data, which brings the analysis and interpretation to the degree of contradiction. Thus, the results they reach and the conclusions differ based on what they yield. There are recommendations and suggestions for it, and there are differences

between researchers in the accuracy of using the most appropriate statistical methods with the available data (Omaira & Saliha, 2015).

Based on this, it is necessary to focus on the knowledge and skill requirements essential to use the most common statistical methods in social work research, whether they are descriptive, evaluative, or experimental research. Much scientific research published in scientific journals in social work journals shows similarities in and common errors in using statistical methods.

Research in social work is based on accurate systematic observation and collection of information to test research hypotheses and then understand and address related problems and issues. Therefore, some believe that the most important and common fundamental distinction in social work research is the combination of qualitative research and quantitative research. Every research, regardless of its nature and purposes, is built within the framework of a qualitative or quantitative strategy. Thus, research in social work aims to discover new facts and verify or test old facts (Bukhalkhal, 2022).

There are many statistical methods and measures commonly used in social work research, for example (the chi-square test), where researchers sometimes need to find significant differences between parts of individuals, things, events, etc. that fall into different categories. The statistical choice used in this is called cases by the chi-square test.

In the chi-square, a comparison is carried out between two sets of observed and expected frequencies. As for the observed frequencies, as indicated by their name, they are the actual frequencies that we get through observation, while the expected frequencies are the theoretical frequencies that are employed to display the comparison (Al-Qassas, 2017, p. 273).

Hence, the chi-factor calculation law can be subtracted:

FORMULA FOR CHI-SQUARE(Lee, Dinis, Lowe, & Anders, 2016, p. 65)

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

The next topic is correlation. Understanding correlation will help you understand the relationship between variables. Variables” may seem like a term that does not apply to your work, but it does. Simply think of variables as inputs and outputs. For example, you might hope that by increasing the number of counseling sessions a client attends

(the input, which we will call variable X) you will affect your client's reported happiness (the output, which we will call variable Y). Understanding how variables X and Y are related is at the heart of your practice and at the heart of correlational statistics (Batchelor, 2020, p. 4).

After correlation, we cover sampling. Sampling lays the foundation for the success of any statistical test. If the sample is not representative of the population you wish to study, then the statistical tests will not help you understand the population. Deciding what type of sample is appropriate and the strengths and drawbacks of each choice will allow you to think critically about the samples used in any research you want to use to inform your work (Batchelor, 2020, p. 4).

The next topic is Regression, a tool that allows you to quantify a relationship between variables while also controlling for other factors. When you learned about correlations and saw scattergrams of data for two variables plotted, the line that best fit those data was created using regression analysis. The T14 tool allows you to isolate the effect of one variable on another while holding other factors constant. If you wanted to know how participation in a religious community affects health outcomes like blood pressure or anxiety, then you would want to hold constant factors like income level, education level, age, and other health conditions to ensure that you were only seeing the effect of the variable of interest (Batchelor, 2020, p. 160)

If you are a social worker working at any of these levels, you must be a good steward of the data you collect and understand how to wield those data effectively.

When you come across a regression analysis, you should check for a few things before deciding whether to use this information in your practice.

- 1) Is the relationship linear? If the pattern created by the data points does not generally follow a straight line, then linear regression is not appropriate.
- 2) Are all important variables controlled? If age is likely to have a big effect on any health outcomes of interest, does the study control age? What about income? Are there other factors that could contribute to this relationship but have not been addressed?
- 3) Is the sample used in the analysis similar to the people you work with? The results of these analyses are only applicable to samples that are similar. If you work with children, a sample made up of adults is unlikely to be useful to you. If you work with people who

live in cities, a sample of rural farmers is unlikely to be useful to you.

- 4) Remember that correlation does not imply causation. Regression analysis cannot tell you that one variable affected the other. You may find a statistically significant relationship between two variables that have nothing to do with each other but happen to behave in a similar way. Beware of spurious correlations.

### **Second: Previous studies**

Al-Shamrani (2014) highlighted the need to focus on the reality of the use of scientific methodology and statistical methods in university theses and on the extent to which statistical methods are employed in a manner that is consistent with research questions. The study also stressed the need to consider the conditions for using and verifying statistical methods. The most commonly used test is the t-test and Pearson's correlation coefficient, without taking into account the conditions of these methods and others.

The study (Al-Hedali, 2018) showed that the most commonly used parametric statistical methods in many of the theses under study is the t-test with a percentage of 24.6% and the one-way analysis of variance test with a percentage of 18.5%, and that the most used non-parametric statistical methods are the chi-square test with a percentage of 5.4% and the Manwenti test At a rate of 3.8% of the total percentage of the statistical tests used, the results also found that there are statistically significant differences at the level of significance (5.51) in the appropriate use of non-parametric statistical methods. This is so that common errors in research results can be reduced.

Al-Mikhlafla (2021) demonstrated the need to pay attention to providing postgraduate students with statistical skills and their relationship to some research variables. There are many ready-made statistical packages, but the use of these packages without good statistical knowledge may lead to fatal errors. Therefore, the study recommended the need to train researchers in various statistical skills and train researchers to use them in collecting and analyzing their data, which was reflected in reaching more accurate and expressive scientific results for the issue under study.

Dalala (2022) indicated that the selection of statistical samples represents the cornerstone of any scientific field research; it is the basis on which any statistical analysis or any conclusions can be reached from the data obtained using the sample. The samples of research based on correct scientific bases will achieve objective results



that realistically reflect the problem of research to identify the main requirements for employing advanced statistical methods in social research.

Hassan (2022) emphasized the necessity of identifying the most common statistical methods used by researchers when calculating the effect size and evaluating the statistical methods most used by researchers in judging their professional intervention programs in the light of parametric and non-parametric statistics. Advanced statistics in research fields is intrinsic to all human sciences. There are many knowledge and skill requirements that researchers must familiarize themselves with to be able to employ scientific statistical methods. Finally, the study recommended the need to conduct more studies related to advanced statistical methods and work on their evaluation. This shall reduce the common errors in scientific research, which is reflected in reaching scientific results that cannot be generalized.

In light of the presentation of previous studies, the focus in these studies was on the necessity of activating the use of statistical methods in social research to reduce the common errors in research results and to minimize the scientific gap, as recommended by previous studies.

### **Third: Significance of the study**

- 1) The analysis phase and the processing of theoretical data represent one of the most crucial phases researchers go through when completing their applied research in social work in general.
- 2) There is difficulty in controlling the statistical methods, and then designing this research to come up with proposals and rules of action to control and ease the control of statistical methods in social work.
- 3) Directing the attention of researchers in social work to many of the most common errors in their use of some statistical methods that affect the credibility of their research results.
- 4) Lack of studies and research concerned with identifying the necessary requirements for using advanced statistical methods in social work.
- 5) Helping researchers in the social work sector to choose appropriate statistical methods for their research.
- 6) The current study contributes to the integrity and accuracy of the results and the achievement of the quality of research outputs and outcomes in social work, as well as the quality of professional practice.

#### **Fourth: Study Objectives**

The current study emanates from one main objective, which is determining the requirements for using advanced statistical methods in social work research.

From this main objective, there are the following sub-objectives:

- 1) Determining the nature of the statistical knowledge requirements necessary for researchers to use advanced statistical methods.
- 2) Determining the nature of the statistical skill requirements necessary to use advanced statistical methods.
- 3) Monitoring common errors in social work research among researchers.
- 4) Delineating some proposals and guidelines to activate the necessary requirements for using advanced statistical methods in social work research.

#### **Fifth: Research Questions**

The current study has a main question:

What is the nature of the requirements for using advanced statistical methods in social work research?

From the main question, sub-questions branch out as follows:

- 1) What is the nature of the statistical knowledge requirements necessary for researchers to use advanced statistical methods?
- 2) What is the nature of the statistical skill requirements necessary to use advanced statistical methods?
- 3) What is the nature of the common errors in social work research among researchers?

#### **Sixth: Study Concepts**

Some literature and writings refer to statistical methods as descriptive, inferential, laboratory, or non-laboratory statistical methods used in data analysis (Al-Shamrani, 2014).

Statistical methods are also defined as all the methods and methods that researchers need to use when verifying the validity of the hypotheses of their studies and reaching certain results that are easy to interpret (Hassan, 2015).

According to the current study, statistical methods can be defined procedurally as the various statistical methods on which researchers in social work rely when analyzing the results of their studies and the possibility of reaching results that can be generalized and trusted.

## **Seventh: Research Methodology**

### **A. Study type:**

Consistent with the objectives and questions of the current study, this study belongs to the type of descriptive-analytical studies, which are concerned with collecting, interpreting, and analyzing sufficient and accurate data necessary to determine the requirements and advanced statistical methods in social work research.

### **B. Used Approach:**

Based on the type of study, it relied on the sample social survey methodology on some promotion research published in social work journals in the Arab Republic of Egypt during the period 2020-2022 AD.

### **C. Study tools:**

The researcher uses the content analysis tool, which is the most suitable tool for the current study, where the researchers analyzed the content of some scientific research published in scientific journals for social work in the Arab Republic of Egypt. The researchers used Cronbach's alpha analysis coefficient to calculate the content analysis tool, and the total result was 96%.

The content analysis method was relied upon in this study, and the researchers considered that the content analysis method is the best method for the current study for the following reasons:

- 1) Relying on commonly used statistical information and processors so that they can be analyzed and avoiding the most common errors in research, despite their different types and approaches.
- 2) The ability to build more accurate statistical analyses in the form of codes distributed between specific relationships and categories.
- 3) The ability to use content analysis to interpret the results in depth so that it is possible to reach the requirements for activating statistical methods and treatments in social work research, and then identify the elements of content analysis through the tool that was applied to the research in question. The number of samples is (30). They included the requirements of statistical knowledge and skills and identifying the most common errors in social work research.

### **D. The limits of the study**

- Spatial field: this study was applied to scientific research published in peer-reviewed scientific journals in the Arab Republic of Egypt from 2020 to 2022.
- Study population: some scientific research published in peer-reviewed journals in the Arab Republic of Egypt in the period

from 2020 to 2022 AD, which numbered (30) articles published in many areas of social work.

The authors relied on a sample of studies published in some scientific journals in the Arab Republic of Egypt:

- ❖ Journal of Social and Human Sciences, Faculty of Social Work, Helwan University.
- ❖ Journal of Social Work Research, Faculty of Social Work, Fayoum University.
- ❖ Journal of Social Work Research, Faculty of Social Work, Assiut University.

They are refereed scientific journals according to the Supreme Council of Egyptian Universities.

- Time range: some scientific research published in peer-reviewed journals in the Arab Republic of Egypt from 2020 to 2022.

#### **E. Statistical methods:**

The current study used several statistical methods, such as frequencies, percentages, and Cronbach's alpha stability coefficient, using the SPSS.

#### **Eighth: Results and Discussion**

The results of determining the characteristics of the study population from the published scientific research under study:

The following tables show the characteristics of scientific research published in social work journals, namely: fields of study, study sample, statistical methods for one variable and percentage, description of the relationship between two variables and percentage, statistical methods for the t-test and percentage, statistical methods such as non-laboratory tests, percentage and types of studies according to statistical methods, the types of approaches used according to statistical methods, and the types of validity and reliability are as follows:

#### **(1) .Table No**

showse scientific research the fields of study for th  
essional practiceaccording to the areas of profpublished n=30

m	Professional Practice fields	Frequency	Percentage	Ranking
1	educational	3	10%	4
2	People with special needs	5	16.67%	2
3	Childhood	3	10%	4f
4	Youth	4	13.33%	3
5	Women's	3	10%	4f
6	elderly	4	13.33%	3f
7	Medical	7	23.33	1

By extrapolating the statistical data of the previous table No. (1), it is clear that the percentage of 10% of the study community for scientific research is (3) single, represented in the educational field bis with the field of professional practice of social work in the field of childhood and women. Then, the percentage of 13.33% of the study community came by ( 4) single items in the fields of youth and the elderly. The percentage of 16.67% of the study population came with (5) items in the field of people with special needs. Finally, the percentage of 23.33% of the study population came with (7) items in the medical field.

The researchers suggest that this is due to the recent focus of scientific research on the social and health effects of the Corona pandemic, which made scientific research in the medical field represent the highest percentage. This is consistent with the priorities of scientific research that is directed to serve society’s contemporary issues and problems.

**Table No. (2)**

**The study sample of published scientific research n = 30**

m	sample	Frequency	Percentage	Ranking
1	regular random	10	33.33%	2
2	Simple random	4	13.33%	3
3	stratified sample	4	13.33%	3f
4	deliberate sample	12	40%	1
5	the total	30	100%	

By extrapolating the statistical data from the previous table No. (2), it is clear that 4 people of the study population for scientific research (13.33%) used the simple random sample and the stratified sample. 10 individuals of the study population (33.33%) preferred to use the random sample, and 12 individuals of the researchers (40%) used the intentional sample. Optimal sample size was calculated by using Cochran and Wilkoskin coefficients.

**Table No. (3)**

**statistical methods for single variable and percentage**

m	Methods	Frequency	Percentage	arrangement
1	Arithmetic mean	17	56.67%	1
2	standard deviation	6	20%	3
3	the medium	7	23.33%	2
	the total	30	100%	

By extrapolating the statistical data from the previous table No. (3), it is clear that 6 individuals of the study population for

scientific research (20%) have used the standard deviation as one of the statistical methods. The researchers suggest this because the researchers are not familiar with the techniques of recovery from the standard deviation. (23.33%) of the study population used the median, while 17 of the study population (56.67%) used the arithmetic mean. This may be due to the spread of statistical methods associated with the arithmetic mean and the dependence of many researchers on them.

**Table No. (4)**  
**statistical methods**

m	Methods	Frequency	Percentage	arrangement
1	Pearson's correlation coefficient	11	36.66%	2
2	Siberman correlation coefficient	13	43.33%	1
3	Binary Correlation Coefficient	4	13.3%	3
4	Simple linear regression analysis	2	6.67%	4
	the total	30	100%	

By extrapolating the statistical data from the previous table No. (4), it is clear that (36.33%) of the study population for scientific research have used the Pearson correlation coefficient as one of the statistical methods, with (11) samples. The researchers suggest that this is due to the lack of knowledge of the researchers in all statistical transactions. 43.33% of the study population used the Saberman Correlation Coefficient (13), and this may indicate that many researchers rely on it.

**Table No. (5)**  
**Statistical tests for the T test**

M	Statistical test	Frequency	percentage	arrangement
1	test-sample t-eOn	10	33.33%	2
2	test-sample t-Two	14	46.67%	1
3	Variance analysis	3	10%	3
4	trend analysis	3	10%	3f
	thetools	30	100%	

it ,(5) .By extrapolating the statistical data from the previous table No .By extrapolating the statistical dataFrom he previoust Table ,(5) .No of the study population for scientific research (%33.33)it is clear that ,test for one sample as one of the statistical methods (T)have used the test-of the study population have used T (%46.67)and ,alone (10)with suggest ,(14)with a rate of ,plesfor two saming that many researchers ..rely on it

**(6) .Table No**  
**laboratory testing-statistical methods for the non**

M	Statistical method	Frequency	percentage	arrangement
1	square test-Chi	16	53.33%	1
2	Manwenty test	3	10%	4
3	oskin testWilk	5	16.67	3
4	Cochrane test	6	20%	2
the total		30	100%	

By extrapolating the statistical data from the previous table No. (6), it is clear that (20%) of the study population for scientific research has used the Cochran test as one of the statistical methods, with (6) alone. 16 of the study population used the chi-squared test, with a, and this may indicate that many researchers rely on it.

**(7) .Table No**  
**types of studies used according to statistical methods**

M	Study type	Frequency	percentage	angementarr
1	Exploratory study	-	-	-
2	Analytical descriptive	19	63.33%	1
3	Experimental	5	16.67%	3
4	Evaluation	6	20%	2
the total		30	100%	

**(8) .Table No**  
**validity and reliability according to statistical methods**

M	honesty		Frequency	percentage	ntarrangeme
1	Virtual validity	arbitration	11	36.66%	2
2	Inner honesty	Pearson coefficient	7	23.33%	3
		Spearman equation	12	40%	1
M	constancy		Frequency	percentage	arrangement
1	constancy	s alpha coefficient'Cronbach	5	16.67%	3
2		t test	9	30%	1
3		chi-square	7	23.33%	2
4		Corpse coefficient	7	23.33%	2f
5		s equation'Hostie	1	3.33%	4
6		Cooper equation	1	3.33%	4f

**(9) .Table No**  
**difficulties that researchers faced in using advanced statistical methods**

M	Difficulties faced by the researchers	Frequency	percentage	arrangement
1	Determine the research topic	12	40%	8
2	Determine the research methodology	17	56.67%	2
3	Obtaining previous Arabic and foreign studies	14	46.67%	5
4	in collecting data and information	10	33.33%	6
5	Get sources and references	7	23.33%	7
6	non Ability on me Access to me Community Search and sample	16	53.33%	3
7	Difficulty applying research tools	15	50%	4
8	non respond respondents with researcher	18	60%	1
9	High material cost	14	46.67%	5f

**(10) .Table No**  
**ledge advanced statistical know**

M	Statistical knowledge	Frequency	percentage	arrangement
1	knowledge of 'Developing researchers advanced statistical methods	16	53.33%	3
2	Researchers know the relationship between variables	17	56.67%	2
3	Researchers know the comparison between o phenomenatw	15	50%	4
4	knowledge of the most important 'Researchers methods used to ensure the existence of a relationship between variables	13	43.33%	5
5	Researchers know how to calculate correlation coefficients	19	63.33%	1

**(11) .Table No**  
**tistical skills advanced sta**

M	Statistical skills	Frequency	percentage	arrangement
1	Tables express the statistical methods used	17	56.67%	5
2	Using the statistical value correctly to answer the research questions	24	80%	2
3	eAdd an interpretation of the output of th recurring manner-tables in a non	22	73.33%	4
4	Determine the keys of statistical analysis accurately	23	76.33%	3
5	Employing statistical methods that are consistent with the research objectives	29	96.66%	1



**(12) .Table No**  
**Common rchers in Employing advancederrors that faced resea**  
**Statisticalmethods**

M	Common mistakes that researchers	Frequency	percentage	arrangement
1	The researcher formulates directed alternative Or not hypotheses directed with the lack of information to support this approach	24	80%	6
2	researcher chose statistical methods It is not suitable for the scientific research sample on which .the study will be conducted	27	90%	3
3	The inability of some researchers to priate scientific level think at an appro They enable them to understand the associations of appropriate statistical analyses	26	86.67%	4
4	The researcher does not have the appropriate skills that enable him toe metrics Choosthat dovetail with .analysis statistic	29	96.66%	1
5	There searchers inability to know the reason for the errors that appear in the results of the Statistical analysis	23	76.33%	7
6	The researcher starts collecting data vance the without specifying in ad type of statistical methods that he will use	25	83.33%	5
7	The researcher considers statistical methods as a goal in itself.	28	93.33%	2
8	The researcher should use statistical methods suitable for large samples with a small research sample.	27	90%	
9	That the researcher rely on a person who specializes in statistics to do the statistical analysis of the data without explaining to him the research problem and its objectives.	29	96.66%	1f
10	non absorb researchers for a methods tical tables Building Statis	21	70%	8
11	non giving Building tables Importance in Supervision	19	63.33%	9

**The most common errors concluded from all previous studies:**

- 1) The difficulty of selecting the appropriate statistical method in social work research.
- 2) The inability to employ the techniques of parametric statistics, as well as the weakness of the ability to benefit from the methods and transactions of non-parametric statistics.
- 3) Weakness in the ability to explain how samples are taken as a determinant for choosing a statistical method.
- 4) Weakness in the ability to employ and formulate research hypotheses as a determinant for selecting appropriate statistical treatments.
- 5) Researchers are biased toward the alternative hypothesis. Hence, they focus their research on proving its validity and not validating it.
- 6) Many of the researchers' previous studies confused between the null hypothesis, which should be tested at both ends of the standard normal distribution, and the alternative hypothesis, which should be tested at one end of the distribution.
- 7) The inability of researchers to apply the criteria of randomness in selecting samples, as the researcher is supposed to choose a sample that bears the characteristics of the community from which it was derived. There should be homogeneity between the sample and the statistical community, whether the samples are selected in a simple random way, organized randomly, or stratified randomly.
- 8) The inability of some researchers to determine the size of the sample, so you find some saying that they will use a sample of 10% or 20% of the size of the population. The question is on what basis these proportions were determined, as statistical equations that determine the appropriate minimum for the sample size must be used.
- 9) Misuse of statistical methods, which means inflating the variance error and thus falling into the statistical test error, which threatens the validity of the results.
- 10) Researchers' use of a certain type of statistical treatment, especially in theses and research submitted for promotion. This means that researchers are biased towards some statistical analyses and not others, either due to the popularity of these analyses among researchers or their ease of use.
- 11) The researchers mix the raw scores with the iterations by multiplying them with each other and then using statistical methods derived from categorical data, meaning the use of parametric statistics based on the raw scores, and from here the researchers lose the accuracy of the results and the strength of the statistical test used. Therefore, ensuring the conditions for using the statistical test is important and necessary.

- 12) Researchers' lack of knowledge of non-parametric inferential statistical methods that deal with small samples. Some researchers may not find it necessary to cancel their plans, such as Kendall's test and Walconson's test.
- 13) The researchers' failure to analyze the results of their research themselves. Their reliance on non-specialized statistics leads to inaccurate results.
- 14) The inability of the researchers to determine the appropriate type of statistical method to find the coefficients of validity and reliability of the research tools, especially when these tools are multiplied, as each type has a way to find its statistical validity and stability. The validity and reliability require specific conditions.
- 15) It is not possible for most researchers in the previous studies in question who have experimental research to ensure the credibility and stability of the tools before experimenting, given that the research to be tested was not given to the sample. This attempt is considered a risk to the entire research, especially when it becomes clear to the researchers that their tools are unfit for use.

**(13) .Table No  
proposals for using advanced statistical methods**

M	proposals	Frequency	percentage	arrangement
1	Employing advanced statistical processors	27	%90	4
2	Focus on measuring effect size	26	%86.67	5
3	Customize supervisor statistical with researchers Masters and Ph.D	28	%93.33	3
4	teaching Established Statistics From with Experience by methods statistic advanced and how Benefit the operation Of which	25	%83.33	6
5	that get up universities Egyptian open courses mandatory for professors in area Statistical analyses	29	%96.66	2
6	development Skill Use strap programs STATISTIC MINITAB ,SAS ,SPSS and others From programs that help researcher to analyze data his research by himself.	30	%100	1

There is a clear congruence between the objectives of the study and the results that are not just a description of the characteristics of the statistical coefficients, but rather the nature of the errors that resulted in the results of the analysis of the content of the previous studies and literature were identified. This sample was selected to be a representative sample of the majority of areas of professional practice of social work.

### **Ninth: Discussing the results**

It is recognized by specialists in the social sciences and social work that statistical methods, with their many classifications and types, laboratory and non-laboratory, represent a critical matter. Therefore, the results of the current study indicate, in their entirety, the need to employ these statistical methods so that a qualitative shift can be made in social work research, by refuting statistical methods. The benefit of those methods can be maximized in achieving the goal of conducting social work research, which is community service and contributing to improving the quality of life.

The follower of much research and dissertations notes that some researchers rely on statistical significance in reporting their results without trying to reveal the amount of the relationship between the two variables. There is an exaggeration in the interpretation of the results based on the level of significance, although it is not valuable from an applied or scientific point of view. Therefore, if it is found, the researchers found that the value is statistically significant, meaning that the independent variable influences the dependent variable. However, it does not indicate the size of the effect or the degree of the relationship between the two variables. Perhaps the statistical significance here does not mean that there is a strong relationship between the two variables.

And by extrapolating many statistical indications of scientific research in social work, which is the subject of the current study, it became clear that many researchers rely on traditional statistical methods- the comparison between the experimental and control groups when examining the effectiveness of some applied statistical methods. Regardless of the measurement instrument used and because it is parametric, it is useful to combine many results from different experiments.

Therefore, the researcher confirms, in the light of his extrapolation of the scientific research in question, that the use of statistical methods without full knowledge of the statistical inference on which these methods depend is more like using medical diagnostic tools without knowledge of physiology or pathological causes.

Hence, this current research came to fill the scientific gap revealed by statistical analyses, which is that there is an urgent need to determine the nature of the requirements for using advanced statistical methods, especially in social work research with regard to knowledge of advanced statistical methods. Researchers in the field of social

work must be familiar with advanced statistical methods and how to use them in their research, especially in knowing how to calculate correlation coefficients, and simultaneously must acquire the necessary statistical skills in their scientific research, such as the skill in using statistical methods that are consistent with the objectives of their research. This makes the results of research in social work more valuable. In addition, this adds to the balance of professional practice of social work with the possibility of relying on these results among those responsible for decision-making. It is also useful to reach strong scientific results in making a professional specificity that gives social work an advantage over others in other human sciences.

It is also worth noting that the two researchers, during the extrapolation of the scientific research under study observed that there were (30) items from the recent research, conducted from 2020-2022 AD. They have many of the most common errors that require scientific treatment, for example, the researchers' failure to choose the statistical methods consistent with the nature of the scientific research sample, their lack of appropriate skills in selecting standards consistent with statistical analyses, their lack of understanding of the scientific methods for building statistical tables, and the reliance of some researchers on persons specialized in statistics, especially SPSS programs, without explaining to them the research problem and the required treatments.

At the end of the research, the two researchers recommend the need to work on activating interest in using advanced statistical methods in all their forms, especially in light of scientific insights and research variables. In addition, there is the need to maximize interest in measuring the effect size of samples, as well as focus on skill in using statistical data packages (SAS-MINTAB) and other programs that help researchers in social work to analyze research data themselves without relying on others. This shall result in a qualitative leap in social work scientific research and achieve the future vision of this research in improving the quality of life and contributing to achieving the desired development that is in the national interest of the Egyptian state.

The results reached are consistent with the objectives of the current study after the inclusion of common errors in social work research and the requirements for its use.

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