

A Doctrinal Analysis of Admissibility and Reliability Standards for Expert Opinion in the United States, the United Kingdom, and Pakistan

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Abstract: *The scientific or technical issues in contemporary judicial proceedings and the intellectual limitations of judges in scientific or technical matters necessitate the reception of expert opinion in such matters. The present study intended to examine the statutory provisions and judicial decisions concerning admissibility, relevancy and reliability of expert opinion in USA, UK and Pakistan. After doctrinal analysis, the present study found that the reliability of expert opinion is treated differently in these jurisdictions. It is a pre-condition for admissibility in USA, it affects both relevancy and probative weight in UK and it only affects probative weight in Pakistan. The analysis also indicated that there is no statutory legal framework in UK, whereas, USA framework provides guidance regarding both relevancy and reliability as compared to Pakistani framework which only guided about relevancy of expert opinion. The analysis also revealed that the courts in Pakistan treated expert opinion as corroboratory or explanatory evidence and focus on the integrity and procedural compliance in securing and submitting the samples for analysis. It is expected that the findings of the present study will be helpful for law makers to incorporate reliability standards in the Pakistani law of evidence to determine the probative weight of expert opinion.*

Keywords: Lawmakers, UK, USA, Pakistan, Admissibility

1. Introduction

The questions of law and fact in judicial proceedings in Pakistan are determined by judges who are expected to decide these questions with their own legal acumen, insight and capability. The judges decide the question of facts with the help of direct or circumstantial evidence mostly tendered by witnesses. The witnesses are allowed to narrate the facts they perceived and not their opinion. The formation of opinion i.e., drawing inference is the function of the courts and not the witnesses (Allen, & Miller, 1992). However, competence and intelligence of judges like other human being are subject to certain limitations which prevent them from deciding certain questions of law and facts. The law acknowledges their intellectual limitations and allow them to seek the help of others who better understand these issues. The concept of friend of court or amicus curie is well recognized in Pakistan and common law countries who assist the courts in deciding or resolving questions of law. As noted earlier, ordinarily the opinion of witnesses is not relevant and admissible ordinarily; however, the opinion pertaining to the matters which are outside the ordinary expertise and understanding of judges is an exception (R v. Reed, Reed and Garmson (2009)). This principle has also been recognized in Pakistan; the courts have observed that the opinion of an expert is relevant on the matters which are

outside the ordinary expertise of judges (Rana Muhammad Afzal versus Tehseen ullah Khan, YLR 2012 Lahore 414). The law allows judges to rely on opinion of certain person who better understand the issues before the court regarding certain questions of facts. Such person is called expert and they have been assisting the courts since long and their assistance had been judicially recognized and required in deciding such questions of facts which related to other sciences and faculties and disciplines other than law (Buckley v Rice-Thomas,1554). In the beginning, such experts were the part of the jury and were meant to decide questions of facts requiring abstruse or technical knowledge; however, since from the late Middle Ages, they used to be called as witnesses in the court to testify (Mackay, 1999). In the late eighteenth century, they were expected to assist the courts in resolving the questions of facts requiring specialized knowledge of science and technology emerged during industrial revolution (Mackay, 1999). The admissibility of expert opinion is based on the doctrine of necessity and the courts seek assistance from the opinion of an expert from this doctrine (Rana Muhammad Afzal versus Tehseen ullah Khan, YLR 2012 Lahore 414).

Theoretically, the requirement for the admissibility of expert testimony and testimony of an ordinary witness is the same; their testimony must be relevant and reliable (Cheng & Yoon, 2005). However, the courts examine and evaluate an expert testimony with more care by focusing on the appropriate standards of the subject an expert is testifying about (Cheng & Yoon, 2005). There are only a few studies on the admissibility of expert opinion in Pakistan and what can be learnt from the legislative or judicial development in UK and USA. The present study is intended to fill this gap by focusing on the following two research questions; How do the United States, the United Kingdom, and Pakistan regulate the admissibility and evaluation of expert opinion through statutory provisions and judicially developed principles? What judicial tendencies and reliability standards emerge from case law in these three jurisdictions? The rest of the paper is structured as follow; the second section describes the methodology, the third section discusses the statutory and case law development in USA, UK and Pakistan, the fourth section offers analysis of the statutory and case law development in these jurisdictions and the last section concludes the study.

2. Methodology

The present study adopted doctrinal research methodology which refers to such studies which are concerned with describing or analyze the statutory laws, by laws, judicial decision and writings of eminent authors (Majeed et al, 2023). This research approach was deployed due to the nature of the research questions which were concerned with the identification of particular law and judicial approach regarding statutory text, and judicial development on expert opinion. The data was collected through primary and secondary sources. The primary sources included the statutory provisions of Qanoon-e-Shahadat Order (hereinafter QSO) and the Federal Rules of Evidence and the juridical decisions given in USA, UK and Pakistan. The secondary sources included the research articles, books and law reports by various authors. The analysis was carried out by identifying and interpretation the relevant statutory provisions in each jurisdiction. The judicial decisions were analyzed by focusing on the admissibility, reliability and probative force of expert opinion. The findings were discussed in two independent and separate sections; one section identified and interpreted the statues and judicial decisions and the other section offered the doctrinal analysis.

3. Expert Opinion in USA, UK and Pakistan

This section addresses the first research question of the present study. It discusses the relevancy, and reliability of expert opinion in light of statutory and judicial frame work in three countries i.e. USA, UK and Pakistan.

3.1. USA

A. Statutory Frame Work

In America, the rule 702 of Federal Rules of Evidence deals with the expert opinion and it states that “A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if the proponent demonstrates to the court that it is more likely than not that: (a) the expert’s scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods; and (d) the expert’s opinion reflects a reliable application of the principles and methods to the facts of the case. Prior to the amendment in 2000, the same rule stated that “If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.” The amendment in the legislative frame work concerning the admissibility and relevancy is due to numerous judicial decisions between 1923 to 2000. These decisions have explained, applied, interpreted and created exceptions to the old statutory rule. The examination of these cases is necessary to understand admissibility and reliability standards for expert opinion and these cases are briefly discussed or examined in the following lines.

B. The Frye and Daubert Standards

The first celebrated case on expert opinion is Frye versus United states (1923) which set the standards for the admissibility and reliability of an expert witness. In this case, the accused named Frye was charged with second degree murder to which he claimed innocence. He wanted to produce an expert in polygraph test during his trial (who was also the inventor of the test) to establish his innocence. However, the trial court did not allow him to produce the expert witness which led him to challenge this decision in the appellate court. The appellate court focused on two issues; is the opinion based on new or novel scientific methods or techniques admissible and should the polygraphy test (in its premature form) be allowed to be used in evidence? However, the appellate court did not allow the accused to produce the expert in polygraphed test (being a new method) and established the principle that an expert opinion would be admissible only if the underlying theory or technique applied by an expert to form his opinion was generally acceptable in the scientific community to which it belongs.

However, this principle was refined and expanded in 1993 in another celebrated case Daubert v. Merrell Dow Pharmaceuticals Inc case. The court rejected the general acceptance test as a pre-condition for the admissibility of expert opinion rather it was set as one of the criteria to determine the weight of evidence (reliability). In this case, the petitioners (mother, father and their two children) asserted to sustain very serious medical implications due to a medicine introduced to mother during pregnancy. The petitioner produced two expert witnesses who gave their opinion (which was not academically published) based on chemical structure analyses, animal studies, and previously published academic literature. However, the trial court rejected the expert testimony holding that such opinion does not meet the “generally accepted” standards. The petitioners appealed against the decision to the district court of California and then the ninth circuit court of appeals, and lastly to the Supreme Court. The court has two major legal questions for the resolution; did the Federal Rule of Evidence 702 overturned “general acceptance” standard in Frye v. United States (1923), and how should trial judges screen scientific testimony? The court held that the rule 702 of the Federal rules of Evidence did not require that the opinion must be based on knowledge which is generally accepted as pre-condition for the admissibility of expert opinion. Resultantly, the supreme court overruled the “general acceptance test” established in Frye’s case in federal courts. Instead, the court established the rule that the expert opinion should be based on scientifically valid methodology. The court also provided the guidelines to determine the relevancy and reliability of expert opinion. The court pointed out that the relevancy of an expert testimony will be determined by addressing the question whether and how it will be helpful for the jury in resolving any disputed question of fact. The court also highlighted that the reliability of expert opinion can be evaluated by considering five factors. First, the opinion must be derived after deploying scientific

methods to qualify as scientific knowledge. Second, the idea or theory of expert witnesses must be capable of being tested through scientific methods. Third, it must have been peer reviewed. Four, it must disclose the rate of error and finally, the opinion or knowledge should have been generally accepted (the court acknowledge this as one factor and rejected it as the only criterion).

It is significant to note that the court clarified that these factors were not exhaustive standard to determine the reliability of expert opinion; instead, the focus of examination should be the principles and the methodology and not the conclusions. Another significance principles established in this case relates to the guidelines regarding questionable expert opinion when it is allowed. The court suggested to allow vigorous cross examination, reception of contradictory evidence to expert opinion, instructions on the burden of proof, and taking away the area of expert opinion from the jury. (Grady, 2006, Mazza & Hanna, 2006). This case is considered significant on four counts. First, it rejected the idea that general acceptance of the opinion is the precondition for the admissibility of expert evidence. Second, it provided guidelines to determine the weight or reliability of expert witnesses and adjust the general acceptance requirement to the reliability of expert opinion instead of as a precondition for admissibility. Third, it provided safeguards concerning doubtful or questionable expert testimony to adopt rigorous means to scrutinize expert opinion when there is any doubt about his testimony. Finally, it shifted the focus to determine the relevancy and reliability of expert witness from conclusions to methodology.

C. Post-Daubert Clarifications and Extensions

After Daubert decision, the subsequent decision not only added and clarified the principles established in Daubert's case but also provided various exceptions. For instance, *United States v. Bonds*, (1993) affirmed, explained and clarified the general acceptance test set out in Daubert's case. An expert in this case gave his opinion regarding DNA identification which fulfilled the standards set in Daubert's case. However, the accused challenged his opinion on the ground that another method might provide accurate and precise results. The supreme court did not accept his argument and held that Daubert's standard required only scientific validity for admissibility, not scientific precision. Likewise, the standard of proof to evaluate the reliability of expert's opinion was established in *re Paoli R.R. Yard PCB Litig*, (1994). In this case, the plaintiff argued to establish reliability of expert witness (whether he is qualified or not) with prima facie evidence. However, the court held that the plaintiff had to establish the reliability of expert's opinion by preponderance of evidence. Similarly, the supreme court also clarified the nature of test for evaluating the reliability of expert opinion set out in Daubert's case and also created exceptions in *Daubert v. Merrell Dow Pharm., Inc* (1995) when Daubert's case was remanded. The court first held that the test for reliability of an expert opinion in Daubert case was not exhaustive but illustrative. Second, the court held that these tests were not applicable in each and every case and the courts might create exceptions. The court further clarified that expert opinion might be excluded from consideration if they failed to use the relevant research, peer reviewed theories or create link between the methodologies and the conclusions. In addition, the supreme court further clarified the generally accepted test to determine the weight of expert's opinion in *Lust v. Merrell Dow Pharmaceuticals, Inc* (1996). In this case, the expert applied the methods which were generally accepted; however, his results were quite different and the trial court rejected his testimony. The party producing the expert argued that the trial court wrongly focused on the results instead of his methods. The supreme court held that his testimony may be excluded if he failed to highlight and defend the reasons that why his results are different from others' results. This case established another principle that an expert testimony might be rejected if he had applied generally accepted methods but his results were unconventional or eccentric.

On the other hand, the question about the publication and the ownership of knowledge relied upon by an expert was settled in *Kannankeril v. Terminix International, Inc* (1997). The court held that it is not necessary that the knowledge which was relied upon by an expert must be his own and must have been published. The court further held that it was enough for the admissibility of an expert opinion that the knowledge relied upon is generally accepted in the community to which it belongs. Similarly, the

question of link between conclusions of an expert and the evidence for his conclusions was addressed in *General Electric v. Joiner* (1997). The expert in this case used the animal studies (on rats) who suffered from cancer due to certain chemical and applied the results on human being to suggest that human being might have been suffered from cancer if they were exposed to such chemicals. In addition, he also relied upon some studies which were inclusive to determine the link between that chemical and cancer. The court held that an expert opinion might be rejected if his conclusions were not supported by the evidence he has relied upon. Likewise, the question when will an expert's testimony be admissible was settled in *City of Tuscaloosa v. Harcros Chemicals, Inc* (1998). In this case, the plaintiff produced an expert witness to establish the conspiracy to fixing the price of certain chemical. The trial court excluded his opinion on two grounds; his opinion was not based on sound methodology and he admitted the absence of statistical test to determine the fixing of prices as per his methodology. The supreme court maintained the decision of the trial court and held that an expert opinion based on technical or specialized knowledge or experience must assist the trier of fact to understand evidence and to resolve any fact in issue. The court also held that if a fact finder might constitute his own opinion, expert opinion would not be admissible. Correspondingly, the standards set in *Daubert's* case was also approved to be applicable upon non-scientific opinion in *Kuhmo Tire Ltd. v. Carmichael*, (1999). In this case, the trial court did not accept the opinion of a technical expert on the ground that his theory about tires is not reliable. The supreme court upheld the decision of the trial court and held that "it would prove difficult, if not impossible, for judges to administer evidentiary rules under which a gatekeeping obligation depended upon a distinction between 'scientific' knowledge and 'technical' or 'other specialized' knowledge."

Similarly, *Weisgram v. Marley Co* (2000) added additional considerations to the standards set in *Daubert's* case. The plaintiff, in this case, called only one expert witness who did not meet the standard set in *Daubert* case and his opinion was rejected. The plaintiff preferred an appeal taking the plea that he should have been allowed to produce another expert witness on the subject matter. However, the supreme court did not allow the plaintiff to produce another expert by holding that he had previous notice that expert did not meet the required standard and he should have produced another expert witness during the trial. The court established the principle that when a crucial expert witness was questionable, the parties should have called upon another expert to overcome the suspicion of first expert. Likewise, *Rider v. Sandoz Pharm* (2002) provided the guidelines and highlighted the significance of epidemiological evidence (statistical evidence) in toxic tort cases.

The above discussion suggests that the rule 702 of the federal Rules of Evidence is the major statutory framework in USA and it requires the courts to examine methodology, error rates, peer review, and its relevance to facts. Moreover, the American judicial approach to handle expert's opinion is very structured, methodology-driven and judges-centric. The discussion also shows that the responsibility has been placed on judges to screen, admit and test the validity and reliability of expert's opinion. The judges admit expert's opinion if it is based on reliable principles, methods, well accepted knowledge, sufficient data and facts and can assist the courts.

3.2. UK

A. Statutory Framework

There is no statutory framework like rule 702 or article 59 in UK. The relevancy, admissibility and the probative force is determined in light of the various judicial decisions which are discussed in the following lines.

B. Early Common-Law Principles on Admissibility

In the absence of statutory framework for admissibility and reliability of expert opinion in UK, the courts develop various principles in judicial decisions. The most celebrated case on the question of admissibility of expert opinion was addressed in *R versus Turner* (1975). In this case, the accused killed

his girlfriend when she told him about her physical relations with another guy. The accused, in order to establish sudden and grave provocation, wished to produce an expert witness (psychiatric) to show her deep emotional relation with his girlfriend. However, the trial court did not receive expert opinion by holding that the subject matter of the opinion was within the common knowledge and experience of jury which it could understand without the help of an expert. *R versus Cooper* (1986) is another important decision which held the principle that an expert's opinion is admissible to assess the reliability of a witness testifying about the fact he perceived. However, he cannot testify whether a witness is telling the truth or not. Another significant judicial decision is *R v. Bonython* (1984). Though it is an Australian case, however, it was frequently used, affirmed and expanded by the UK courts. In this case, the accused was charged with planting a bomb in a building (a Magisterial court in South Australia). A police officer received a threatening telephone call which was recorded about the bomb. The police searched the bomb, found it and defused it before any damage. The police interrogated and interviewed many people including the accused and a police officer who interviewed the accused recognized accused's voice as that of the person who made threatening call. The police officer was produced in the court as expert in voice recognition who testified about the similarity of recorded voice and accused's voice. The defense raised objections regarding the competency, required skill, nonscientific but experienced based opinion and experience of the police officer as expert witness and the science of voice recognition as sufficiently developed and reliable body of knowledge. The court admitted the testimony of police officer as expert witness and established two pre-requisites for the admissibility of expert opinion. First, an ordinary human being cannot form a sound judgement about the subject matter and the judgement requires instructions or experience in the area of knowledge. Second, a person will be deemed an expert witness regarding the subject matter should have acquired special knowledge because of his study or experience. This case has been applied and extended in *R v Cooper* (1998), *R v E* (2009), *R v Browning* (1995) (on the deterioration of child and normal human memory), *R v Masih* (1986), & *R v Walker* (2003) by declaring that if the subject matter is within an ordinary competence of human being, expert opinion will not be admissible. The two limbs test was extended by supreme court in a civil case in *Kennedy v Cordia* (2016) UKSC 6 where the court added the principle that expert must be impartial.

C. Modern Principles on Novel Science & Scientific Reliability

Likewise, the issue of admissibility of an expert opinion based on novel scientific methods was addressed in *R versus Dallagher* (2002). A lady was killed by an unknown person who left an ear print impression on the window. The police arrested the accused based on the ear print found on the window and its matching with his sample and produced it as evidence in the trial court. The trial court awarded life imprisonment; however, the accused challenged the admissibility, scientific validity and the probative force of this evidence in the appellate court. Though, the court allowed the use of ear print evidence based on novel technique; however, it emphasized to show more caution while accepting expert opinion based on novel science and technique. The court held that it is unnecessary that the techniques used by an expert to form his opinion must be generally acceptable. The court further clarified that the nature of techniques relates to the probative force of evidence and not to its relevancy. In *R v. Reed* (2009), the court clarified the pre-requisite for the admissibility of an expert opinion by pointing out that the opinion must be based on demonstrable scientific methods. This case provided the test for admissibility and determination of probative force of expert opinion. As far as the admissibility of expert opinion is concerned, the court held that the opinion must be based on sufficiently reliable scientific basis which means three things. First, the scientific knowledge must be organized, and recognized as reliable body of knowledge. Second, the opinion must relate to the matters where the opinion is legally admissible. Lastly, the judges will admit expert opinion if not opposed by adverse party and if opposed by adverse party, the burden of proof will be on that party to establish that it is not admissible. Similarly, this case also provided criterion to determine the probative weight of the evidence i.e., by deploying adversarial methods used in non-scientific matters (cross examination etc.) to

determine the evidentiary weight of expert's opinion.

Similarly, in *R v. T* (2010), the court provided guidelines regarding the admissibility and reliability of expert opinion about shoe print evidence which is not based on sound scientific principles. The court held that the expert must demonstrate that the methodology used by him was transparent (capable of being repeated), the data used for opinion formation was sufficient and reliable and he used qualitative language instead of quantitative if the data was insufficient or unreliable. Likewise, *R v Dlugosz* (2013) was another significant case on expert opinion dealing with low number copy of DNA. The court established three significant principles in this case. First, low copy number DNA evidence is admissible; second, issues with DNA evidence analysis relates to the weight of DNA evidence and not its admissibility. Third, absolute precision of expert opinion is not essential for the admissibility of expert opinion. *R v Tsekiri* (2017) is another important judicial decision on expert opinion in general and DNA evidence in particular. In this case, the accused was convicted only on the basis of DNA evidence recovered from the handle of handbag belonging to accused. Though, the recovered DNA evidence provided complete standard strength profile; however, it was the only evidence against the accused. The court held that conviction is justified if it is only based on DNA evidence and the prosecution need not to prove when or how DNA was deposited. Similarly, in *Kennedy v Cordia* (2016), the UK supreme court clarified the categories where expert evidence is admissible. The court held that an expert opinion may be admitted regarding four categories; the opinion may be admitted regarding a fact which requires specialized knowledge or experience, the opinion must be impartial and independent, assist the court in understanding matter which is beyond the ordinary experience of an ordinary human being and methodology and knowledge used for opinion formation must be reliable and his opinion cannot be used to determine the ultimate legal questions in judicial proceedings.

The above discussion shows that the relevancy and admissibility of an expert opinion in UK is not backed by any statutory framework; instead, the judicial decisions govern relevancy, admissibility and probative weight. The discussion also indicates that the expert opinion in UK is relevant when the matter is beyond the ordinary experience or understanding of judges. It also shows that expert should be independent and impartial who has acquired expertise because of study or experience. In addition, opinion of an expert should be based on reliable, demonstrable and well accepted body of knowledge. Similarly, the methodology deployed by experts should be transparent, and backed by sufficient data. An expert's opinion based on novel science relates to the probative force of his opinion and not related to admissibility; however, the judges must admit such evidence with special care.

3.3. Pakistan

A. Legal Framework on Expert Testimony

Article 59 of the Qanoon e Shahadat Order deals with the relevancy of an expert opinion and it states that; "when the Court has to form an opinion upon a point of foreign law, or of science, or art, or as to identity of hand-writing or finger impressions, or as to authenticity and integrity of electronic documents made by or through an information system, the opinions upon that point of persons specially skilled in such foreign law, science or art, or bomb disposal or in questions as to identity of hand-writing or finger impressions or as to the functioning, specifications, programming and operations of information systems, are relevant facts. Such persons are called experts". The article only speaks about the areas where expert opinion is relevant and is silent about how to test the reliability of his opinion". The article not only defines an expert but also specifies the area where his opinion may be relevant and admissible.

B. Judicial Approach towards Admissibility and Relevancy in Scientific and Non-Scientific Matters

The Pakistani courts have provided various principles concerning admissibility, relevancy and probative weight of expert opinion. These cases can be divided into two major groups; expert opinion in scientific matter and in non-scientific matter. The scientific matters refer to such matters or knowledge which is

derived through scientific methods which are systematic, empirical, based on rational procedure and are verifiable (Hjørland, 2021). The judicial decisions indicate that the Pakistani courts elaborated the expert opinion on numerous scientific matters including DNA evidence, medical sciences, finger and thumb impression, hand writing, reports of chemical examiner and experts in ballistics.

As far as expert's opinion regarding DNA evidence is concerned, the supreme court has established five major principles in *Ali Haider versus Jameel Hussain* (2021). First, the judicial decision must be made in line with the sound scientific knowledge or techniques. However, it is necessary that the knowledge or techniques relied upon must be well established, and widely accepted as reliable and credible in the scientific community. Second, the judges are the gatekeepers of the admission of scientific evidence and must, therefore, possess good understanding of scientific knowledge. Third, the report of an expert on DNA if prepared by PFSA is admissible per se (it is not necessary that he will be called as witness in the court, see also *Azeem Khan v. Mujahid Khan* 2016 SCMR 274). Four, DNA evidence is the strongest corroboratory evidence to establish the identity of an accused especially in rape cases due to its accuracy and conclusiveness. Five, the acceptance of this evidence heavily depends upon the skill and integrity of investigating officer in collecting, preserving and submitting the DNA evidence for analysis. Likewise, various judicial decisions have also provided the procedure to conduct the DNA test. For instance, the court held that the consent to conduct DNA test is necessary to protect the dignity of man guaranteed in the constitution. Likewise, the judicial decisions dealing with medical sciences include the post mortem and medical report. Though, it is necessary that an expert must be called in the court; however, his opinion may be admitted if a court can itself understand it or another witness familiar with his signature and handwriting may verify signature or handwriting (*Moeen Naseem versus State*, 2020). Similarly, the Lahore high court in *Sabir Hussain versus state* (2019) held that the defective or careless opinion of an expert in medical cases will not outweigh direct evidence.

Similarly, finger impression has become a widely accepted science with unique marks which cannot be similar of two persons. The science of finger prints is based on two general assumptions; no finger prints are alike and its pattern always remain the same without any change. The constitutional courts in Pakistan have recognized the significance of this science in various decisions. For instance, the supreme court has held that the fingerprints science for the identification purposes is a handy tool and universally accepted in judicial proceedings due to its straightforwardness and cost effectiveness (*Mst. Ramzan Bibi versus Ibrahim*, 2025). In addition, the Lahore high court has also established two significant principles in *Faqeer Baksh Khan versus Khan Muhammad* (2013). First, the opinion of an expert regarding finger impression not binding on the court; second, the party may produce another expert if it was not satisfied with first expert. However, he must provide the credentials of another expert in the court. Likewise, the admissibility of handwriting expert was clarified in *Mst Adalat Bibi versus Mst Socha Bibi* (2023) where the court held that it is not necessary that only direct evidence can be received to prove the thumb impression and the expert opinion cannot be received. The court held that the court may receive any evidence whether it is direct or confirmatory or material evidence including expert opinion which may assist the courts in determining the rights of the parties. Equally, the judicial decision show that in certain circumstances seeking the expert opinion on hand writing is necessary and failure to such resort will justify the court to draw adverse inference (*Shabir Hussain versus Mehboob Hussain*, 2023). Besides, there is no need to send the handwriting to expert if the court can itself ascertain it (*Abdul Waheed versus Syed Akbar Hussain Wasti*, 2023). Further to that, it is also necessary for the admissibility of expert opinion regarding handwriting that he must be called in the court and his report should be carefully examined in juxtaposition with other available evidence (*Pervaiz Iqbal versus Akhtar Wafa*, 2018).

On the other hand, the law treats the opinion of chemical examiner as conclusive evidence regarding certain subject matters. For instance, the Quetta high court in *Abdul Khaliq versus State* (2023) pointed out that the opinion of chemical examiner is conclusive under Control of Narcotics Substance Act,

1997. However, the court held that the supporting, opposing or inconsistent facts to his opinion are also relevant. Likewise, the supreme court established three significant principles regarding opinion of expert in ballistics in Muhammad Hani versus State (1993) and Sardar Khan versus State (1998). First, his opinion is confirmatory or explanatory of direct or circumstantial evidence. Second, the opinion will not carry much weight if there is trustworthy and reliable direct evidence. Third, the direct evidence cannot be outweighed by expert opinion. Similarly, the supreme court in Noor Muhammad versus State (2005) also discussed the situation when expert's opinion will not carry its weight. The court pointed out that if the case against accused had been proved by trustworthy, reliable and confidence inspiring evidence, expert opinion would not have any value.

The nonscientific knowledge is opposite to scientific knowledge and it refers to such knowledge which is based on unsystematic personal observation, intuition, belief or subjective interpretation and which cannot be testable and verifiable (Popper, 2002, Chalmers, 2013). The opinion of an expert on non-scientific matters is also admissible in Pakistani legal framework. The numerous judicial decisions indicate that the courts in Pakistan have established various principles regarding the admissibility, relevancy and reliability of an expert in non-scientific matters. These matters include the opinion of an investigation officer, land broker and translator and various principles have been established by the courts regarding his opinion. For instance, the supreme court in Muhammad Arshad versus state (2011) held two significant principles regarding the opinion of an investigating officer. First, the investigation of case does not fall in science or art since it can be conducted by any person. Second, his opinion regarding the guilt or innocence of an accused person is not admissible and relevant. The Karachi high court in Asghar Chauhan versus State (2023) applied these principles and also held that an investigating officer is not an "expert", hence cannot be treated as expert. In addition, it is also necessary that an expert must establish his expertise before giving opinion as an expert. For instance, the supreme court in Land Acquisition Collector, Sargodha versus Muhammad Sultan (2014) established the principle that an expert in non-scientific subjects (like opinion regarding the value of land acquired) will have to establish his expertise by way of his education, experience or otherwise. The courts have also provided procedural guidance before admitting expert's opinion. For instance, the supreme court has established two significant principles in Muhammad Mansha versus State (2019). First, it is necessary that a trial court should first administer oath to a witness intending to be produced as expert witnesses and second, the court will determine the competence of an expert witness before receiving his opinion. Likewise, the Lahore high court in Meezan bank Limited versus WAPDA First SUKUK Company Limited (2022) held that an expert will have to appear in court and has to face the cross examination otherwise his opinion will not be relevant and admissible.

C. Evidentiary Weight of Expert Opinion

Evidentiary weight of evidence refers to the value which a judge assigns to evidence to decide existence or nonexistence of any fact in issue or relevant fact (Edmond, 2015, Saks & Faigman, 2008). The Pakistani courts have rendered various judicial decision in which the nature and the standards to test the evidentiary weight of an expert opinion has been discussed. For instance, evidentiary weight of an expert opinion regarding handwriting was discussed by Lahore high court in Abdul Majid versus Anjum Akhtar, (2024). The court held that opinion of handwriting expert is corroboratory in nature and cannot be used as sole evidence to decide the rights of the parties. However, the court pointed out that such report will be given more weightage when other strong and confidence inspiring evidence is not available in the case. In addition, the supreme court in Sirbuland versus Allah Lok (1996) held that the court cannot itself compare the disputed signature if an expert has rendered his opinion about the same signature. However, the opposite party may request the court to send the disputed signature to another witness if he wishes. Likewise, in Mohammad Qassim versus Muhammad Iqbal Malik (2025), the Lahore high court highlighted the nature of this evidence. The court held that expert opinion regarding handwriting is a weak piece of evidence and can be used to confirm or explain direct or circumstantial

evidence. Likewise, in *Mst Noor Elahi versus Muhammad Abbas* (2022), the court held that an expert opinion about handwriting is not conclusive evidence but a weak piece of evidence which cannot substitute the direct evidence. The court further held that only expert opinion regarding hand writing could not be made basis for the judicial decision. The supreme court has also held that the evidentiary weight of expert opinion about hand writing depends upon the circumstances of each case (*Mst. Sadat Sultan versus Muhammad Zahur Khan*, 2006). Likewise, the evidentiary weight of an expert opinion about hand writing in criminal cases has also been discussed and the court pointed out that it is a weak piece of evidence (*Khadim Hussain versus State*, 2019) which is not sufficient for conviction until corroborated by other evidence (*Muhammad Shafiq versus Ehtasab Burau Azad Jammu and Kashmir*, 2020). Similarly, in *Muhammad Farooq versus State* (2006), the supreme court held that an expert must compare accused's thumb impression with their undisputed thumb impressions otherwise his opinion will have no evidentiary weight. Likewise, the courts have also pointed out certain circumstances in which the opinion of an expert on hand writing will not carry any weight. For instance, such evidence will not carry any evidentiary weight if parties have failed to establish their case with other evidence (*Syed Muhammad Umar Shah versus Bashir Ahmad*, 2004), or where the expert has not compared the hand writing with original (*Sh. Fazal Ur Rehman versus Wazir Muhammad Khan*, 2013), or other confidence inspiring evidence is available on record (*Mrs Perin Dinshaw versus Mubarak Ali*, 2006).

Equally, the supreme court established three significant principles regarding opinion of expert in ballistics in *Muhammad Hani versus State* (1993) and *Sardar Khan versus State* (1998). First, his opinion regarding ballistics is confirmatory or explanatory of direct or circumstantial evidence. Second, the opinion will not carry much weight if there is trustworthy and reliable direct evidence. Third, the direct evidence cannot be outweighed by expert opinion regarding ballistics. Also, the supreme court in *Noor Muhammad versus State* (2005) also discussed the situation when expert's opinion will not carry its weight. The court pointed out that if the case against accused had been proved by trustworthy, reliable and confidence inspiring evidence, expert opinion regarding ballistics would not have any value. Likewise, the Lahore high court has provided two major principles to assess the credibility of DNA evidence in *Tanvir versus State* (2020). First, the credibility or reliability of DNA should be assessed by considering the standards or techniques deployed to collect and transmit such evidence. Second, the credibility should be assessed by focusing on the safe custody; it must be unbroken, unsuspicious and secure.

The above discussion indicates that an expert's opinion is regulated by article 59 of QSO which only sets out the definition of an expert and the areas where his opinion may be relevant. However, it does not provide any criterion to evaluate the evidentiary weight and reliability of his opinion. Consequently, the courts have provided the guidelines to assess the credibility, procedural safeguards and scientific validity of expert opinion. The discussion also shows that expert's opinion in both scientific and non-scientific matters is considered as weak piece of evidence which requires corroboration and cannot be conclusive evidence except in a few matters. In addition, evidentiary weight of his opinion heavily depends upon the safe chain of custody, its relation with direct evidence and the integrity and expertise of an expert.

4. Analysis

This section addresses the second research question of the present study and it contains the analysis of the statutory and judicial framework as discussed in the previous section. The legal frameworks and the judicial decisions discussed in section 3 show a number of issues pertaining to reception and reliability of expert opinion in three selected jurisdictions. These issues include the overall focus of judicial decisions, judicial tendencies, the role of judges in admitting and assigning probative weight to expert opinion and the existing test for relevancy and reliability of expert opinion in these jurisdictions.

The analysis of statutory provisions and the judicial decisions indicates that the major focus of American

courts is on scientific validity, error rates, testing, peer review and methodology behind opinion. The courts play an active and technical role in assessing the methods deployed by experts with the purpose not to let junk science influence courts. On the other hand, the English courts have focused on four issues. First, they have paid attention to the fact that whether the opinion of an expert can in fact provide assistance to judges or juries. Second, the courts look into the question whether the opinion is regarding the matters which are beyond ordinary experience or understanding of judges. Third, the courts are generally concerned with the nature and limits of expertise if the subject matter overlaps with ordinary understanding and experience. Four, the courts have now started paying attention towards the reliability of methodology deployed by an expert while forming his opinion. Contrarily, the Pakistani courts remained attentive towards the procedural aspects related to expert opinion including but not limited to safe custody, chain of custody and safe transmission of specimen to expert for analysis. Moreover, the Pakistani courts relied upon the reports submitted by government agencies and did not show interest in analyzing the scientific reliability of the techniques deployed by them in forming their opinion. In addition, the Pakistani courts treated the expert opinion as corroboratory evidence which is not sufficient to decide disputed questions of facts until statutes provide otherwise. Likewise, the analysis of the judicial decisions also shows the propensity of the courts regarding experts' opinion. The American cases indicate that they have moved from general acceptance of opinion towards scientific reliability of opinion. They exclude such opinion which is not based on reliable and demonstrable scientific techniques. The courts work like gatekeepers who do not allow such opinion to be admitted in evidence which does not pass the screening test. In addition, the American courts first examined the methodology and then the conclusion of an expert. On the other hand, the English courts gradually developed a reliability-oriented approach to admit experts' opinion. The English courts admit expert's opinion; however, they attach varying probative weight to opinion considering the circumstances of each case and the scientific foundation behind such opinion. Contrarily, the Pakistani courts have broad statutory rules of relevancy without any guidance on the reliability of expert opinion. The Pakistani cases also indicate that the court generally admit expert opinion but are reluctant to decide questions of facts on his opinion. Instead, the courts treat expert opinion as corroboratory or explanatory to direct or circumstantial evidence. The cases also give the hint that the approach of Pakistani courts regarding opinion is inconsistent to examine the scientific validity of expert opinion.

The judicial decisions also display the role of judges in evaluating opinion in these jurisdictions. The cases show that American judges play very active role in admitting and assessing expert opinion; they consider themselves as the gatekeepers and screen the reliability and validity of expert's opinion before its admission. They evaluate the methodology deployed by an expert before such opinion reaches the jury and they have established such test as a threshold question for the admissibility of expert opinion. The English judges, on the other hand, do not play as much active role as American judges play. The English judges are mostly concerned with subject matter of opinion and they satisfy themselves that opinion is about a matter which is beyond ordinary understanding or experience of judges or juries. They also look into the expertise of an expert. However, the recent decision show that they have started to adopt a structured reliability test to examine expert's opinion. The Pakistani judges, on the other, do not play an active role in allowing the admission of expert opinion. They focus on assessing the credibility and the procedural compliance of an expert opinion and do not pay attention towards the methodology deployed by them. The judicial decisions of three jurisdictions also indicate the ultimate test devolved by judges for admissibility and reliability of an expert opinion in these jurisdictions. The American judges have established the principle about admissibility of opinion that it must be relevant and reliable. Likewise, the ultimate test for determining the probative weight of expert's opinion depends upon the quality of methodology, nature of data and the logical connections among data, reasons and conclusions. Likewise, the ultimate test in UK for admissibility of expert's opinion is the nature of subject matter of opinion and expertise of an expert. Similarly, the ultimate test in UK for determining the probative value of expert opinion hinges upon the reliability of scientific methods

adopted by an expert, and the transparency and the degree of validation of these methods. On the other hand, the admissibility of an expert opinion in Pakistan is statutorily controlled; the state not only provide the subject matters where expert opinion is relevant and admissible but also it requires that an expert must possess special skill. The probative force is determined by judges who consider safe custody of sample, procedural compliance, and consistency between expert opinion and direct or circumstantial evidence. The courts rarely examine the scientific validity of underlying methodology deployed by an expert.

The discussion in section 3 also shows the nature of statutory framework concerning expert opinion in these jurisdictions. The United States and Pakistan have explicit statutory provision dealing with expert opinion. The rule 702 in USA requires sufficient data or facts, reliable principles and methods and reliable application of these methods. The rule has imposed gatekeeping role on judges regarding admissibility of expert opinion. Their statutory framework is methodology driven which require scientific validation of methodology and not the expertise of an expert only. In addition, the framework makes the reliability as a precondition for admissibility of expert opinion. The Pakistani statutory framework not only provides the list of subjects where an expert opinion may be admissible but also provide a vague and loose definition of an expert. However, the statutory provisions do not provide any guidance regarding test for scientific validity, evaluation of methodology, peer review or testing the error rates. As a result, the Pakistani framework is relevancy oriented without guidance for scientific reliability. On the other hand, there is no statutory framework in UK defining expert or the subjects where his opinion is admissible. The admissibility and probative force are determined by judges in UK leaving the judicial framework flexible and reliability driven.

The discussion shows that the current situation in Pakistan is closer to pre Daubert situation in USA when the courts used to admit expert opinion with minimal scrutiny test. The Pakistani regime concerning expert opinion is relevancy based as compare to USA and UK which follow reliability driven approach. The Pakistani courts are not equipped with statutory or doctrinal tools to evaluate the scientific reliability of expert opinion. Instead, they use the criteria based on corroboration and procedural integrity to evaluate expert opinion. The absence of reliability criteria has led Pakistani courts to evaluate expert opinion inconsistently especially in emerging scientific fields like DNA and digital evidence. It seems that the scientific weakness in expert opinion may be examined or highlighted during cross examination in Pakistan. This situation in Pakistan necessitates to develop a statutory criterion defining when expert opinion is admissible and how his opinion should be evaluated.

5. Conclusion

This study set out to doctrinally examine the judicial approaches and tendencies concerning the admissibility and reliability of expert opinion in USA, UK and Pakistan. The current study has demonstrated that the distinct regulatory approaches are operational in USA, UK and Pakistan to admit and evaluate expert opinion which have been shaped by judicial decisions. The USA and Pakistani statutory frameworks explicitly regulate the admissibility and reliability of expert opinion with the difference that USA directs the judges to determine the relevancy and reliability of expert opinion whereas Pakistani framework just instruct the judges about the relevancy and admissibility. However, UK is devoid of any such statutory framework and it heavily depends upon judicial decision for the admissibility, relevancy and reliability of expert opinion. These judicial decisions emphasize on the assistance to the juries, expertise of an expert and methodological reliability. As far as judicial tendencies are concerned, the American courts have assumed the role of gatekeepers and show strong inclination towards scientific validity standards to admit expert opinion. The English courts have gone through a consistent evolution from traditional admissibility test to structured reliability analysis of expert opinion. On the other hand, the Pakistani courts treat expert opinion as corroboratory or explanatory evidence. They put more emphasis on safe custody, transmission and handling of the samples and the consistency of expert opinion with other evidence. The major concern of Pakistani

courts is the procedural integrity instead of the reliability of the methods used by an expert to determine the probative weight of expert opinion. The situation in Pakistan is like pre Daubert situation in USA when the courts were concerned with the admissibility of expert opinion and not its scientific assessment. The major difference across three jurisdictions lies in the treatment of expert opinion; reliability in the USA concerns with admissibility, reliability in UK concerns with both admissibility and probative weight and in Pakistan it only affects the probative weight. The present study also demonstrates that the Pakistani legal framework and judicial approaches are scientifically underdeveloped which necessitates to develop and incorporate a statutory provision like rule 702 in Pakistani legal framework to better place the opinion of expert in Pakistani context.

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