Chapter 21
Methods of Ascertainment of Personal Damage in the Kingdom of Saudi Arabia

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Abstract This chapter illustrates the historical, judicial, and juridical framework of personal injury assessment and compensation in the Kingdom of Saudi Arabia, describing the expert's qualification and competences and detailing the ascertainment methodology and criteria of evaluation utilized for identifying, describing, and estimating any personal injury, its temporary and permanent consequences, and the causal value/link between the event and the injury and between the injury and the impairment/disability.

21.1 Historical, Judicial, and Juridical Overview

The Islamic religion is a doctrine and law. It is a religion of beliefs and worship with an integrated law that regulates the different aspects of human life and enacts rules and provisions to help people live in the right way. The Islamic criminal justice system is considered one of the most important aspects that Islam took care of to organize the lives of Muslims, in any place of the world. It also set up an integrated system of punishments to deter the offenders. Islamic law established the interests of Muslims and had them protected by the rules of criminality, thus establishing five interests: religious preservation, self-preservation, mental health preservation, offspring preservation, and, finally, money preservation. Shariah law is not dogmatic and can always be open to further interpretation according to changing circumstances. It shows equality for both the duties and rights of Muslim and non-Muslim alike and to ensure protection of their rights in practicing their faith freely unless these practices are harmful to the community or country [1–3].

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21.1.1 The Primary Sources of Islamic Legal Law (Shariah)

- Quran
- Sunna
- Ijtihad which is divided into [Qiyas and Ijma'a]
- Subsidiaries sources.

21.1.2 Definition of Shariah Law

It has two definitions: Specific provisions, rules, and guidance for civil and criminal matters. The other one is the provisions of the Quran, which are meant for all times and all circumstances and not only during the life of the prophet.

Sunna: The model established by the prophet in terms of practice, explanation, and approval matters. Basically, it confirms supplements and interprets and details the Quran's rules and provisions. The Quran, being the word of god (Allah), abrogates Sunna, and Sunna cannot abrogate the Quran because its basic function was to interpret it [4].

Ijtihad: An independent deduction of laws, which is a collective effort or exercise by Muslims or jurists and judges that which they reached from an independent deduction of the rules and laws from recognized sources. These laws are either reached by Juristic consensus of opinions [Ijma'a] or reasoning by analogy [Qiyas] [4, 5].

Ijma'a: Are laws based on the juristic consensus of opinion of all competent juries after the death of the prophet Mohammed (PBUH). And it can be inspired by the decisions of the four successors, "KHALIFS," of the prophet or the prophet's friends (Sahaba). These laws can abrogate the law of Quran or Sunna [4, 6].

Qiyas: Reasoning by analogy and the adoption of principles established by the Quran, Sunna, and Ijma'a to the solution of a problem not expressly regulated for or mentioned there [5, 6].

The last source of Islamic jurisprudence is constituted by the *Subsidiary Sources*, which include Public interest, Prevention of harm, and Customs, "given that they do not contradict Shariah law."

The legitimate punishments established by the Islamic law, though they may seem to be intense and meticulous, do not propose torture as punishment. On the contrary, Islamic law is well known for its compassion towards all people. Islam does not achieve the target of general security of a community by the threat of sanctions; instead, it implements the approach of general deterrence and private deterrence, as well as attaining the satisfaction of the victim and his family. Everyone is in agreement that the embodiment of Islam is distinctively universal [3].

No one disagrees that the universality and comprehensiveness of Islam has required that its rules change with the locations and times. In our day and age,

huge changes have occurred in the social, economical, and political aspects of life and these changes have demanded the presence of newer needs and necessities to maintain an adequate style of life. Jurists in Islam should take the new needs and necessities into account and these should be carefully considered when inserting new provisions or sub-provisions, whether for worship or transactions. The holy Quran and the Sunna are considered to be the highest original source of Islamic jurisprudence [7].

Before the birth of Islam, Arabs had a tribal-based society. Written laws did not regulate their lives, but all the different tribes did in fact ban some acts which were considered forbidden and passed out punishments on those who committed them. Nowadays, these acts are considered as "crimes" in the language of the law. And if one individual committed one of these forbidden acts, the whole tribe would bear the responsibility of his actions; this usually sparked the beginning of many long tribal wars [7].

For this situation arose the concept of making amends between the tribes by paying for mistakes in order to achieve overall peace and well-being. This concept is called the "Deya'a." Islamic scholars are all in agreement that a Deya'a is a form of penalty bestowed on an individual who has committed manslaughter. This form of financial sanction is Islam's way of deterring individuals from committing such acts of violence. Several verses from the Holy Quran and the Sunna have discussed and explained this concept in detail. It is important to note a very common misconception among people, namely, that when a Deya's is given to the victim's heirs or family it is not in any way a form of compensation for their loss [8].

Al-Deya'a is literally defined as "the money that is paid to the victim of a felony or his heirs, whether the felony was intentional or accidental." Such money has been called Deya'a by the Holy Quran in one of its verses (and compensation payment presented to the deceased's family "is required" unless they "give up their right to" charity) "Alnisa'a/92."

While for injuries or nonfatal felonies, the money paid to the victim or his heirs is called an Arsh. In Islamic criminal law, sanctions are not limited to, but include, financial sanctions such as Deya'a and Arsh. These two are the most significant forms of financial sanctions. Islamic criminal law defines the Arsh as the financial sanction for an assault that results in injury or damage to the victim's body parts [9].

There are two kinds of Arsh.

Estimated Arsh: this type of Arsh has a specific amount that has been identified by Islamic law, for example, the Arsh for the eye, hand, and the foot is half a Deya'a. In other circumstances, the Arsh may be a quarter of a Deya'a or even a one-tenth of a Deya'a, such as the case for cutting of one finger.

Unrated Arsh: this type of Arsh has not been specified by a specific amount in Islamic law. Instead, it is left to an experienced judge to make an informed decision. This form of Arsh is also called a judgment of justice. A judgment of justice is an un-estimated Arsh in nonfatal crimes.

Decisions regarding any harm or injuries whose penalties, whether a Deya'a or Arsh, were not specified by the prophet Mohammed, peace be upon Him, are left to the discretion of a judge, being based on the latter's experience and knowledge [10].

21.1.3 Financial Penalties in Islamic Jurisprudence

Money in Islamic Shariah has a special quality as it is invested by the state for the sake and the benefit of the individual and for the public treasury. The public treasury is a form of social solidarity among members of the community. The Deya'a fine is a punishment and is concerned with paying money from the public treasury, according to the rules of the Islamic Shariah, but it is paid to the victim or his heirs to achieve the idea of satisfaction and in order to overcome the idea of the ownership of the individual over the idea of state ownership. And this is perhaps what has created confusion for some jurists about the nature of Deya'aweatherit' as a form of compensation for the victim or his heirs. Is it a form of punishment, because it was originally a fine, with equal value in relation to the person who commits manslaughter or unintentional murder? Or is it a compensatory penalty where, instead of having the culprit (who killed another person with purpose) executed when the heirs of the victim offer forgiveness, these latter receive money for such forgiveness instead? [11]

The point here is that the Deya'a is a financial penalty and the money that gets paid by the accused or his family is not to the government. Instead, they pay the money to the victim's family or his heirs. Nothing will change the way it is paid or to whom. Deya'a only compensates for the physical damages that resulted from a crime; it does not include the moral damages that result from the crime [8].

The justice system in the Islamic Shariah has a unique exclusiveness, because it is closely related to the Islamic system, which carries a degree of individuality and differs from the rest of the other legislator regulations. Islamic Shariah is different from the law and they cannot be compared, because the nature of the Islamic Shariah is different from the nature of the law [9–11].

The person who commits manslaughter or homicide is the person obligated to give compensation, as Allah said (every soul, for what it has earned, will be retained) "Almuddaththir 38." There is no doubt that the compensation would be paid by the assailant (the guarantee) to the victim, in accordance with the provisions of the law [12].

The estimated amount of compensation should include the resulting emotional damage (psychological) and it should be calculated by a judge on a case-by-case basis. The compensation or insurance has to be paid immediately after the judge has passed his verdict. The term insurance is used here because it is a broad term that does not denote the compensation of damage alone, but it encompasses many different aspects such as sponsorships, commitment, responsibilities, and fine [13].

21.1.4 Types of Court in Saudi Arabia

There are four main identified types of courts in Saudi Arabia:

– *Summary courts*: examines the civil, matrimonial, and juvenile cases.

- *General Courts*: concerns civil, criminal, family, and matrimonial trials. It involves one judge in small cases and three judges in major cases.
- *Supreme Courts*: examines all verdicts by other courts. It includes three main circuits each chaired by the chief justice and two other judges. In major cases, it includes a chief justice with four judges.
- *High Judicial Board*: involves a president and 10 members. Their roles are to examine all matters referred by local governors, to discuss the controversial legal matters that are referred by the Ministry of Justice, and to make a revision of all convictions examined previously by other courts [5].

After taking a good look at the history and laws pertaining to the issue of financial reimbursement in personal injury cases through an Islamic perspective, it is possible to lay down the exact and correct legal steps and measures needed to take in cases of both civil and criminal personal injuries in need of financial reimbursement.

At the time of the injury, the victim will head straight to the hospital to receive the adequate medical and/or surgical care required. It is the duty of the hospital to inform the police of the injury. Upon the arrival of the police at the hospital, they begin a preliminary investigation and relay the case to the commission of investigation and public prosecution bureau of investigation and public prosecution, whose job is to perform an in-depth investigation of the case. After the proper investigative processes have been complete, the case is sent to the courts. The courts will hand the case over to the medical commission, which is a committee made up of several consultant medical doctors from different specialties and doctors of religious science. This committee takes on the task of reviewing all of the medical paperwork related to the victim's injury that led to their hospital stay, including their relation to the assault/accident that resulted. If the age of the injuries corresponds to the time of the assault/accident, the committee also has the right to perform any medical test they see fit. The purpose of the medical commission's inquires is to reach an informed decision about the degree of disability of the victim as a result of the injuries. The decision is then written up as a report and sent back to the courts, which will then be able to specify the exact amount of reimbursement entitled to the victim in accordance with Islamic Sharia'a Law.

21.2 The Expert's Qualifications to Conduct the Examination and Evaluation

There are four governmental stakeholders that evaluate cases to determine the deficit or damage ratios of car accidents and other causes that may lead to damage or loss of an organ of the body. These five agencies include the Ministry of Health (forensic medicine, the medical corps, the medical committee in case of medical negligence and medical liability), the Ministry of Justice, and finally, in relation to social insurance, the Ministry of Social Affairs, which defines rates of incapacity.

Regarding forensic medicine, when a case is referred to a forensic medical center to determine the percentage of disability as a result of an injury, the proceedings of these issues are handled by one of the qualified forensic doctors who have the necessary credentials and a master's degree or doctorate in clinical forensic medicine, based on the note of the Ministry of Health 549/760/17 dated 12/16/1418 AH.

The medical committee includes consultants in all medical specialties, each of whom possesses a higher degree or fellowship in his specialty. There are also, across the Kingdom of Saudi Arabia, four medical bodies (Riyadh, Jeddah, Dammam, and Medina) located in the main areas of the country.

Medical committee legitimacy, the third participant, includes consultants in various medical specialties. Each of them holds a higher degree or fellowship in different specialties. It should be noted that the forensic medical committee is concerned only with quantifying the deficit in medical negligence cases and the medical liability rates that result from medical error when a patient files a complaint in relation to a doctor.

Social insurance in the Ministry of Social Affairs is concerned with evaluating and assessing the rates of deficit from work injuries. They make their decisions based on medical reports prepared by consultants in various medical specialties after the disclosure of the patient and the performance of necessary tests [14–16].

21.3 Ascertainment Methodology

21.3.1 Hospital Medical Report Description

The medical report should be comprehensive, recent, and relevant to the traumatic incident by all treating hospitals which took part in the patient's medical management. The report must be in the English language and include the following information.

- Personal information: Name, age, address, telephone number, and insurance information.
- Current illnesses: A list of significant illnesses, operations, as well as fixative aiding instruments that had been used.
- Medication Record: A list of medicines prescribed or given to the patient.
- History and Physical examination: A record that describes any major illnesses and surgeries the patient has had, any significant family history, genetic history, health habits, and current medications. It should also state what the physician found during the examination.
- Admission notes: including the clinical status of patient, Glasgow Coma Scale (GCS) and the vital signs upon ER arrival, resuscitation (if done or not), and duration of hospital admission with highlights of the Progress Notes made by the doctors, nurses, therapists, and social workers caring for the patient that reflect

the patient's response to treatment and the doctor's observations and plans for continued treatment during hospital admission.

- The follow-up care that took place after the hospital discharge with clarification of health progression and whether there was any improvement or worsening.
- Consultations—An opinion about certain conditions made by another specialty physician, while staying in the hospital, not by the original treating physician.
- Special Physician's Orders—treating physician's directions to other members of the healthcare team regarding the patient's medications, tests, diets, and treatments.
- Imaging and X-ray Reports—Description of the findings of X-rays, CT scans, MRIs, mammograms, ultrasounds, and other highly specific scans. The actual films are maintained in the radiology or imaging departments or on a computer and a CD copy should be given to the patient.
- Lab Reports—Describing the results of tests conducted on body fluids in a chronological order. It should include chemistry, virology, bacteriology, urinalysis, stool analysis, and blood typing.
- Immunization Record—Documenting immunizations given for diseases such as polio, measles, mumps, rubella, and the flu. Parents should maintain a copy of their children's immunization records with other important papers, if preserved.
- Consent and Authorization Forms—Copies of consents for admission, treatment, surgery, and release of information.
- Operative Report—A document that describes surgeries performed, if ICU has been indicated, and any medical instrumental methods that have been implemented, e.g., "Orthopedics fixative prosthesis" has been used and gives the names of surgeons and assistants.
- Pathology Report—Describes tissue removed during an operation and the diagnosis based on the examination of that tissue.
- Discharge Summary—A concise summary of a hospital stay, including the reason for admission, significant findings from tests, procedures performed, therapies provided, response to treatment, condition at discharge, and instructions for medications, activity, diet, and follow-up care [14, 15].

21.3.2 Medical Committee

Committee doctors/forensic doctors are obligated to provide the board and all parties involved with their best professional opinion based upon certain guidelines of the claimant's medical condition, degree of impairment, and functional abilities.

The Agenda Guidelines provide detailed criteria for determining the severity of a medical impairment, with a greater weight given to objective findings in cases of work-related injuries. It is their responsibility to submit medical evidence that the Board will consider in making a legal determination about a disability.

21.3.3 Medical, General Physical, and Regional Examination

Once the medical report has been prepared, the next step is to compose a report on permanent impairment. This can be achieved by reviewing the Agenda Guidelines, studying the medical report, performing a thorough history and physical examination, as well as examining findings and appropriate test results. It should state the work-related medical diagnosis (i.e.) based upon the relevant medical history, examination, and test results. It should also identify the affected body part or system by referring to the Agenda Guidelines and follow the recommendations for establishing a level of impairment [14].

As a first step, doctors should obtain additional medical information and reevaluate the case at the current time. Like any clinical medical evaluation, doctors should introduce themselves to the patient, let him/her understand what is the exact role for the committee and the reason of this visit, ask the patient about any current symptoms, the patient's overall progression of condition with time, any recent medical illness that have evolved, or physical insults that have happened recently, and recount the relevant medical history. Doctors will obtain more details on any form of negligence that had happened to the patient, such as a delayed hospital presentation for seeking medical care or discharge against medical advice, or even the absence of any relevant follow-up care. Then a full medical examination will take place, beginning with the inspection of each body system to assess normal conditions and deviations. Doctors will assess for color, size, location, movement, texture, symmetry, odors, and sounds, in the same way as any other doctor might assess each body system. Then, palpation would take place by touching the patient in different areas, using varying degrees of pressure. Wearing gloves when palpating mucous membranes or areas in contact with body fluids is mandatory, especially in the presence of some current sporadic diseases. Palpation of tender areas is the final step. Percussion comes later which involves tapping the doctor's fingers or hands quickly and sharply against parts of the patient's body to locate organ borders, identify organ size, shape and position of certain organs such as liver, uterus, etc., and determine if an organ is solid or filled with fluid or gas. Lastly, auscultation, which involves listening for various lung, heart, and bowel sounds with a stethoscope. The neurological assessment would be based on the patient's reaction to the aforementioned, the patient's reactions during the interview, and the level of consciousness. There are many neurological tests that should be made, such as cranial nerve testing, papillary response, motor and sensory functions, tone and cerebellar functions, such as Romberg test, finger to nose test, etc. [14, 15].

Regarding cases of limitation of movement of the victim, a full comprehensive examination of all the limbs is performed to assess the amount of limitation and the level of disability.

It is important to note that before the case is presented to the medical commission for assessment, it must first be established whether the injury has reached its final stage; that is, it will not progress any further for the better or for the worse. In

cases when the victim's injury has not yet stabilized, the commission medically reevaluates the victim after a 1-year period has elapsed, depending on the specific circumstances of the case. This time period is given to allow the injury to stabilize in order to allow a just and fair evaluation of the disability. This can be explained as when maximum improvement level has been reached, with no expectation of improvement or significant changes that might happen in the forthcoming 12 months from the date of evaluation.

The medical commission has the right to enlist the help of any consultant in any medical specialty, within reason, to aid in the evaluation of the degree of disability. The commission also has the right to order any further medical investigation in order to help in the review.

Getting to know the client may reveal many hidden subclinical psychotic symptoms that would not be disclosed directly by the patient. In this case, the committee doctors should assess the case carefully and determine the need to engage a consultant psychiatrist in a future appointment.

If the case requires any additional investigative tests, the patient can be directed to the tertiary governmental hospital of that area [14].

21.4 Evaluation Criteria

The evaluation criteria and injury determination, whether a permanent disability or not, will be thoroughly described in this section.

In The Kingdom of Saudi Arabia, the standards for the ascertainment and compensation of personal injury under civil-tort law are enforced through the court judicial system based on unique references to the Islamic Sharia'a Law.

In Saudi Arabia, we have two main categories: (a) work-related injuries or (b) personal injuries. The latter will include any injuries that result from any cause not related to work, such as accident, trauma, insult, disease, etc. In the event that an injury is related to work, the patient must be thoroughly evaluated by a governmental medical committee related to Ministry of Health. Under Agenda Guidelines, which are approved by the Ministry of Labor, the percentage of deficit will be calculated upon the Agenda's table. Later, the court would receive the final percentage level that is approved by the medical committee and sentencing compensation will follow accordingly [14–16].

Many examples have been chosen and discussed while writing this chapter. Different systems with different dimensions and variable perspectives have been searched thoroughly in relation to our target. Those systems are Cardiovascular system, Respiratory system, Central nervous system, and Psychological AND psychiatric system.

On the other hand, the second category that we will discuss is cases of personal injury not due to work. The process of evaluation and determination of the permanent disabilities would have a different pathway through governmental sectors, with different reference. Once fully recovered, the patient will be directed to a regional

medicolegal committee, which is also related to the Ministry of Health. There are currently 4 such committees in Saudi Arabia. These committees request a full medical report, including the laboratory investigations that were done for the patient. The specialized committee members can request any further additional tests such as a Computerized Scan, Magnetic Reasoning Images, and Electroencephalogram, etc. Then, a final opinion will be issued based on the whole case, accordingly.

If the patient has not yet fully recovered, and his/her status doesn't reach the maximum medical improvement, which has been described earlier as (Medical Stability State); in this case, the evaluation and examination will be postponed within the forthcoming year.

21.4.1 Causal Link

Enables the determination of the causal link of the traumatic incident and the injuries, and depends on the following.

- A detailed memo from the legal authorities such as court or bureau of investigation and prosecution, which are based on the police report that thoroughly describes the traumatic incident.
- Full, comprehensive medical report, which includes the date of the incidents. It should describe the injuries that resulted from the incidents and should include site, size, base, edge, length, dimensions, color, alignments, healing type, complications ("if presented"), and the relation to other anatomical areas. Moreover, the medical report should assess the nature of the injury and give, if possible, a description of the causative tools, the medical intervention that took place, and the estimated period required for full recovery.

21.4.2 Work-Related Injuries

Based on the Ministry of Labor's decree number 160/insurance on May 2009 [14, 15], which stated: "upon declaration of general council organization for social insurance number 929 which approved the agenda of sustained rates of disabilities according to certain formula and criteria." This will be thoroughly described in the present section, although it is important to highlight some basic terms, as follows.

- *Deficit*: Is defined as partial or total loss of a human's body parts or functions. Once the state of medical stability has been achieved, a permanent disability may be considered.
- *Medical Stability State*: This can be explained as when the maximum improvement level has been reached, with no expectation of improvement or significant

changes that might happen in the forthcoming 12 months from the date of evaluation.

- *Dominant Upper Limb*: The upper limb used for writing purposes.
- *Agenda Guidelines*: A booklet that determines the percentage of permanent disabilities, which was approved by the Ministry of Labor in 2009. It consists of 15 chapters, including chapters on the cardiovascular system, respiratory system, gastrointestinal tract, genitourinary tract, skin diseases and its disfigurement, blood diseases, endocrine system, the ear–nose–throat system with hearing loss, eye diseases, the central nervous system (peripheral and central), the psychological and behavioral system, spine and vertebrae, upper limbs, lower limbs, and pain.

21.4.2.1 Principles and General Considerations

- Patients should complete the medical treatment until the state of full stability is reached. This is based on a medical judgment that the claimant has recovered from the work injury to the greatest extent and no further improvement in his/her condition is reasonably expected. Then the estimation of percentage of personal damage (i.e.) rate of disability would follow.
- If the traumatic injury leads to a total loss of function of an organ, the level of deficit would be equivalent to eradication level. On the other hand, if less extensive damage has been confirmed, the level of deficit would be equal to amputation level.
- The patient's previous condition, which is prior to the traumatic event, must be a reference for evaluation.
- All deficit percentages of the approved Agenda should be applied without any changes, modifications, or adjustments. However, there are certain conditions or "exceptions" for which the degree of deficit could be readjusted and liable for a 25 % addition. These exceptional conditions include the following.
- Nature of work in relation to the deficit: job performance is affected because of the deficit, e.g., for a writer who has lost fingers, a 10 % addition is acceptable.
- Age: less than 40 years of age can have an increase of up to 5 % of the estimated percentage.
- Job experience: for those who have worked 10 years or more at the same job, an increase of up to 5 % of the estimated percentage is envisaged.
- Level of education: patients with a high school education or lower can get an additional 5 % of the estimated percentage.
- If the client has more than one part involved in the injury, the percentage for each should be made independently. Subsequently, a total summation of these parts according to the approved Agenda for the determination of the rate of disabilities (deficit) should be determined.
- Consideration of the upper limb dominance should be made, if it is involved.
- When determining the permanent percentage deficit, all assisting devices should be removed, in a non-harmful manner.

- The medical committee report should be detailed and descriptive for the deficit/disability. A consideration of its percentage and its causative reasons should be made. Moreover, the committee has the right to phrase recommendations, accordingly, such as the owning of an artificial “prosthesis” or keeping the client away from exposure to any harmful agent.
- If the injurious event affected one of the dual organs, such as the eyes, ears, or lungs, and assuming that the other one was already injured before the traumatic event, the formula would be as follows:
- Permanent disabilities = Total dual percentage of both − Single organ percentage loss.
- When the committee is convinced that there is a new or an additional diagnosis connected to the original injury being assessed by the committee, the case should be referred for medical reevaluation before any final decision is made.
- If the causative agent of the loss has involved both the central and peripheral etiologies, then the percentage would be encountered upon the higher value, not the sum.
- The pain resulting from the injuries has been taken into account when developing the agenda, and thus it should not be included in the deficit. However, chronic pain has been mentioned in the agenda.
- The outcome of the injuries and their consequences (affection) should be the main focus while determining the percentage of deficit, not its causes or its nature. An example of these are daily work activity, personal care, communication, transportation, physical activity, sexual activity, the five senses, sleep ability, and hand functions.
- A thorough description of aiding methods while assessing the case should be made according to that which is set out in the tables of the agenda.

21.4.2.2 CVS: Cardiovascular Impairment Guidelines

This involves three tests: MET’S (metabolism), EF% (Ejection Fraction), and FCCD (Functional Classification of Cardiac Disease).

The FCCD can be subclassified into four degrees.

(i) Heart disease not interfering with physical activity.
(ii) Heart disease which has minor effect on physical activity.
(iii) Heart disease which has marked effect on physical activity.
(iv) Heart disease which is associated with dyspnea during rest.

All of the aforementioned criteria will be collectively analyzed and, according to Table 21.1, the categorization will be determined. If more than one category has been found, the largest ratio will be considered.

The peripheral vascular compartment of both upper and lower limbs has five main categories of disabilities, as follows: 7, 25, 55, 80, and 100 %. These percentages are mainly based on certain variables which include presence or absence of muscular aches in relation to the degree of physical activity, degree of vascular

Table 21.1 Cardiovascular impairment guidelines for classification

	First category 7 %	Second category 20 %	Third category 45 %	Fourth category 80 %
MET'S	7 ≤ OR	7> - 5 OR	5> - 2 OR	2 > OR
EF%	50 ≤ OR	40–49 OR	31–39 OR	30 ≥ OR
FCCD	1st grade	2nd grade	3rd grade	4th grade

injury in relation to the need of amputation, presence of vascular calcification based on a radiology diagnosis, response to treatment of Raynaud's phenomenon, loss of peripheral pulses, amount of tissue loss underneath skin, and degree of peripheral edema and its response to treatment.

21.4.2.3 Respiratory System Impairment Guidelines

There are six categories for determining the permanent respiratory disabilities. It exclusively depends upon the respiratory function tests, which include the following indicators: FVC, FEV1, and FEV1/FVC%; the diffusion capacity [D co]; and oxygen uptake parameter VO^2 max mL/(kg.min). For rating objective pulmonary test results, please refer to Table 21.2.

Regarding work-related injuries, it refers to asthma that is induced (occupational) or exacerbated (work aggravated/exacerbated) by inhalation exposures at work. These provoked types of asthma might be a result of a patient's exposure to irritants, such as animals, birds, sea foods, insects, diisocyanates (e.g., in glues, coatings, paint), plant parts, including wood and grain dusts, vegetable gums, and baking flour, pharmaceuticals and enzyme powders (e.g., detergents and dough additives), anhydrides (in epoxy, resins, plastics), amines (in shellac, lacquer, hairdressing, paint, plastics, resins), solder fluxes, colophony, and metal dusts and salts (e.g., platinum, nickel, cobalt, chromium). Moreover, irritants are extremely important in this respect, since Saudi Arabia is one of the biggest oil and gas producing countries worldwide. Such irritants include chlorine, ammonia, sulfur dioxide, nitrogen oxides, phosgene, smoke, and high level irritant dust. It is very important to remember that one of the committee's recommendations should include the client's avoidance of identified provocative agents.

In order to be rated for asthma, there should be a diagnostic workout that confirms the diagnosis of asthma. The treating physician should establish the diagnosis upon a compatible history of episodic symptoms, which include chest wheeze, cough, sputum, chest tightness, or breathlessness, which is worse at night. Spirometry is used to demonstrate any airflow obstruction by determining the FEV1 and its corresponding changes in response to the treatment of short-acting B agonist and/or a trial of corticosteroids.

Table 21.2 Respiratory system impairment guidelines for classification

Indicator	1st group 0 %	2nd group 10 %	3rd group 20 %	4th group 35 %	5th group 50 %	6th group 80 %
FVC	80 % ≤ and	71–79 % OR	60–70 % OR	56–59 % OR	51–55 % OR	50 % ≥ OR
FEV1	80 % ≤ and	71–79 % OR	60–70 % OR	51–59 % OR	41–50 % OR	40 % ≥ OR
FEV1/FVC%	70 % ≤ and					
D co	70 % ≤ OR	65–69 % OR	60–64 % OR	51–59 % OR	41–50 % OR	40 % ≥ OR
VO^2 max mL/ (kg.min)	25 ≤	24-23	22-20	19-18	17-16	15 ≥

Table 21.3 Bronchial asthma impairment guidelines for classification

Indicator	FV1 after treatment with short-acting B agonist	% Change of FEV1 after treatment of short-acting B agonist	OR	PC_{20} mg/mL Value	AND	Medication and therapy status
0	80 % ≤	10 % >		8 <		Without
1	70–79 %	10–19 %		8-0.6		On bronchodilators, occasionally
2	60–59 %	20–29 %		0.6-0.125		Daily use of bronchodilator + low dose of inhaled cortisone
3	50–559 %	30 % ≤		0.125≥		Bronchodilator (PRN) + high daily dose of inhaled cortisone, or oral tablet of cortisone
4	50 % >	–		–		Regular use of daily cortisone both orally and inhaled + Bronchodilator (PRN)

Airway hyperresponsiveness is measured by PC_{20} (mg/mL) value, which is ultimately used in the rating methods of bronchial asthma.

For detailed information on impairment guidelines of Bronchial asthma, please refer to Table 21.3.

After measuring the percentages of each indicator, the final result will be the total index of bronchial asthma. This value will follow values mentioned in Table 21.4 for eliciting the final deficit ratio mark.

Table 21.4 Total index for bronchial asthma

The total index of bronchial asthma	% Deficit
0	0 %
1	10 %
2	15 %
3	20 %
4	25 %
5	30 %
6	40 %
7	50 %
8	60 %
9	70 %
10 ≤	80 %

21.4.2.4 Psychological and Psychiatric Impairment Guidelines

This involves work-related posttraumatic neurosis, posttraumatic stress disorder, and other causally related psychiatric conditions. Such cases should have psychiatric and psychological evaluations and opinions, as well as psychological and/or neuropsychological testing.

The impairment evaluation should include the impact of the psychiatric impairment on functional ability, consisting of the following components.

– *Activities of daily living*: personal hygiene, communicative abilities, physical activities, five senses, hand functions, transportation, sexual function, and normal sleep pattern.
– *Social activities*: ability to take part in social gatherings and activities.
– *Ability to concentrate*: completion of work responsibilities.
– *Ability to accommodate* in any situation under variable common circumstances.

For more information on the psychiatric and psychological impairment guidelines, please refer to Table 21.5. Note that all of the criteria mentioned in one category should be considered collectively.

21.4.2.5 Nervous System Impairment Guidelines

The nervous system impairment guidelines have been classified into the following parts.

(i) *Cranial nerves impairment guidelines*
Table 21.6 sets out the requirements, as follows.

(ii) *Consciousness*
It has been categorized into five groups. For more information on the consciousness impairment guidelines, please refer to Table 21.7.

Table 21.5 Psychiatric and psychological impairment guidelines for categorization

Category type	%	Case descriptive criteria
1st category	0 %	• Perform normal daily activities • Perform the responsibilities under normal circumstances or coercive condition without difficulties • Although patients may have psychological illness, they still can do the tasks with no impairments
2nd category	5 %	• Perform normal daily activities with mild social and personal impairment • Patient has minor anxiety (feeling uncomfortable) which affects performance • Almost performs the given tasks, which is due to development of secondary symptoms of psychological impairment under minor stresses at work
3rd category	20 %	• Housework is easily performed, which is different from the external environment due to loss of trust and dependency needs • Marked social and personal impairment or having an anxiety attack, unexplained fear of reinjury, or continuous isolation associated with depression • The degree of psychological impairment may need amendment of the given tasks
4th category	40 %	• Complains of marked family relationship deterioration and, to a lesser extent, social relationships • Complains of depressive attacks for long periods of time or abnormal behaviors leading to avoidance of daily activity • Hospital admission might be needed with urgent need of functional task's amendment
5th category	65 %	• Cannot perform any activity whether inside or outside home for chronic period of time • Complains of severe amnesia, loss of concentration, poor self-hygiene, or loss of interest in life and is not able to control mood or has psychotic illnesses which require continuous supervision, admission, and amendment of functional tasks

(iii) *Epileptic fits*: If the epilepsy is episodic, which does not require any medical treatment, the deficit will be 5 %. Another relevant factor while determining the deficit percent of an epilepsy patient is whether the epilepsy is controlled by treatment or not. The deficit will be 10 and 25 %, respectively.

(iv) *Sleep disorders*: When the sleep pattern does not affect the performance of daily activity, then the percentage of deficit is 7 %. On the other hand, mild, moderate, and severe effect on daily activity would result in 15, 30, and 50 %, respectively.

(v) *Mental health impairment guidelines*: The mental health functions include awareness, memory, attention, judgment, and ability to solve problems. The extent of how much daily life activity has been involved is the key element for determining the impairment deficit percent. Moreover, the ultimate needs of supervision by others and the self-care disabilities are important factors. The range of deficit varies from 7 to 60 %.

Table 21.6 Cranial nerves impairment guidelines for classification

Cranial nerve	Presenting illness	Approved percentage
1st cranial nerve	Complete anosmia	3 %
2nd cranial verve	Reference to the visual examination methods previously mentioned	Specific table
3rd, 4th, and 6th nerve	Reference to the visual examination methods previously mentioned	Specific table
5th nerve	Mild trigeminal neuralgia (Douloureux) not responding to treatment	7 %
	Moderate trigeminal neuralgia (Douloureux) not responding to treatment	20 %
	Severe unilateral trigeminal neuralgia (Douloureux) not responding to treatment	25 %
	Severe bilateral trigeminal neuralgia (Douloureux) not responding to treatment	30 %
7th nerve (facial nerve)	Mild unilateral facial weakness or loss of taste on up to 2/3 of the ipsi-lateral tongue	4 %
	(i) Mild-moderate facial weakness bilaterally or unilateral facial palsy	15 %
	(ii) Bilateral facial palsy	35 %
8th nerve	Hearing impairment	Refer to hearing loss tables
	Tinnitus	5 %
	Ataxia: (i) Mild degree with minor precautions	7 %
	(ii) Moderate degree with precautions in most physical activities, not including personal care	20 %
	(iii) Moderate to severe degree in almost all physical activities including personal care	40 %
	(iv) Sever ataxia which needs help and close supervision	60 %
9th, 10th, and 12th nerve	(i) Mild dysphasia or dysphagia while eating fluid or semisolid food	10 %
	(ii) Moderate dysphasia or dysphagia with hoarseness of voice and food aspiration	30 %
	(iii) Severe dysphagia with continuous aspiration of saliva	50 %

(vi) *Ataxia*: Walking impairment is mainly dependent on whether the patient can stand or walk. If a patient can walk, what distance can he/she cover? Finally, whether an aiding or assisting device is needed. For further information, please refer to Table 21.8.

(vii) *Spinal cord dysfunctions*:

Diseases of the spinal cord may have different forms of presentation such as respiratory symptoms, urinary symptoms, fecal incontinence, symptoms

Table 21.7 Consciousness impairment guidelines for categorization

15 % deficit	30 % deficit	50 % deficit	80 % deficit	100 % deficit
Mild frequent attacks with mild limitation of daily activity Or Frequent loss of consciousness	Mild frequent attacks with moderate effect on daily activity	Prolonged conscious impairment with inability to care for self	Semi-comatose state with need for nursing care and therapy	Irreversible comatose patient who needs continuous medical care

Table 21.8 Walking impairment guidelines for categorization

Description	Percentage of deficit
Can stand and walk, but with difficulties in climbing stairs	7 %
Can stand and walk for some distance without need of aiding devices	15 %
Can stand and walk with support	30 %
Cannot stand without support and needs assisting device	50 %

of sexual dysfunction, and palsy. Each of them has its own guidelines and will be clarified and discussed.

- *Respiratory illness*: Spontaneous respirations with difficulties in breathing varying from a 10 to 35 % deficit depending on whether the patient is moving or at rest. If the patient is on a bed, the value will reach 70 %, while no spontaneous breathing implies a 100 % deficit.
- *Urinary symptoms*: Controlled urinary incontinence would encounter 7 % deficit, while an uncontrolled one is equivalent to 15 %. A higher rate of 32 % in case of uncontrolled urinary dripping is confirmed in the agenda of permanent work-related disabilities. A complete loss of urination with the need of a catheter insertion is considered as being a 50 % deficit.
- *Fecal incontinence*: Partial impairment of fecal incontinence would be considered as 10 %. This value might increase to up to 45 % with complete loss of control. Preservation of anal reflex would lower the rate to 30 %.
- *Sexual dysfunctions*: please refer to Table 21.9.

  If patient's age is less than 40 years, a 50 % of calculated deficit value would be added using the previous table, whereas a 50 % of the calculated value will be subtracted when the age of patient exceeds 65 years.
- *Paralysis*: Quadriplegia encounters 100 % deficit; dominant hemiplegia will be equivalent to 80 %, while a nondominant one would be much less (65 %). A unilateral lower limb involvement would be 50 %, while bilateral lower limb paralysis is much higher (85 %).

Table 21.9 Sexual dysfunctions guidelines for classification

Description	Deficit %
Difficulties in erection, ejaculation, or impaired libido function with preserved neurological reflexes	7 %
No libido with preserved neurological reflexes	15 %
Complete loss of sexual function with inabilities to have sexual intercourse	20 %

(viii) *Muscular paresis*:

Involvement of dominant limbs would give rise to a higher level of deficit than a nondominant one. Similarly, paresis of two limbs would be double the value of single limb paresis.

21.4.3 Personal Injuries

21.4.3.1 General Principles and Considerations

These are injuries not related to work, for which the following principles are valid.

- The preemployment full medical examination needs to be conducted on all candidates as well as periodic examinations for the professions which require them. They should be done when considering the nature of the position for the determination of the permanent disability. If there is no medical evidence, then the candidate is considered 100 % healthy.
- The word organ in the table means any organ, part of the body, extremity, nerve, bone, or muscle, and any full resection or removal of it leads to total loss of employment.
- While determining the percentage of the permanent disability the age of the affected person, gender, and nature of the position, the effect of the disability on his/her performance, social and general state, physical and mental abilities, and the fact that he/she is unable to perform daily activities are all taken into consideration. The committee has the right to determine the percentage of the disability and increase it to 40 % of the deserved percentage depending on how much it affects his/her professional performance, on the condition that it does not reach 100 %.
- Permanent disability is determined in cases of organ loss, delimiting its purpose, deformation, or any disability caused by a chronic illness that has settled, after guaranteeing the absence of progression upon its cure in spite of the use of medical care. The committee has the right to recommend any procedures to cure the case including surgeries if they determine that the temporal disability could be cured or helped. They determine the percentage after these procedures, based on the results.

- When losing a dual organ such as the eyes, arms, and legs, if one of them was lost before the accident then the determination of disability percentage is measured as if he/she lost both at once, because this organ was the dependent one.
- If the worker was left-handed, the loss of his left extremities will be determined by the right and vice versa.
- A partial loss of any complete organ which is mentioned in the schedule will be determined according to the professional effects of that loss or by cutting the loss percentage from the total.
- If an injury affects more than one organ or part of the body, the disability percentage will be determined for each and then combined together without reaching 100 % and in all cases not less than 1 %, where the affected person needs the help of others. The deficit will increase by 50 %.
- Disability percentage is determined in an injury as a whole.
- Disability percentage is determined for any damaged nerve by the affected organ according to the results it has on job performance.
- If a person is taking indemnification for an organ injury and had late complications affected by the same injury, the percentage changes according to the complications. Temporary disability is considered permanent after 5 years.
- Defects, illnesses, and deformations since birth, previous illnesses, or injuries do not entitle the affected person to indemnification unless his/her job causes more complications.
- An organ that is not mentioned in the schedule will be determined according to the effect of that loss, in professional terms, and by comparing it to similar injuries mentioned in the schedule.
- Psychological cases caused by professional injuries are dealt with exactly as physical injuries, considering the disability percentage determined by specialized medical committees. Thus, they are not mentioned in the schedule.
- As for noncontagious diseases caused by receptivity, the disability percentage is measured according to the complications arising from the disease, not the disease itself. In case of death, it needs to be precisely proved using a medical examination that death was the result of complications of that disease.
- The remaining part will explain some examples on how to determine personal injuries: pain and upper limb and lower limb disabilities [16].

21.4.3.2 Pain

It is agreed upon that estimating the degree of pain in a neurological disability is a precise situation.

The pain arising from a neurological disability is originally caused by personality disorders affected by different factors: the first factor is the affected person's real feelings, how he/she is expressing and handling them, and his/her psychological state. Most of the time such pain is the symptom of many diseases, such as essential nerve inflammation, nerve contusions, compression of nerves, nerve roots

compression by joints or bone diseases, root inflammation, and marrow inflammation.

The percentage of permanent disability in these cases is caused by organic diseases that cause “hip inflammation and the compression of nerves.” This kind of pain is considered as a factor for the increase of the percentage of the permanent disability. In most cases, the existence of neurological pain is assured by objective signs which are sometimes clear and sometimes ambiguous. Determining permanent disability is measured by the strength of the pain and its prevalence, including its effect on working and daily life [16].

21.4.3.3 Limbs

General considerations while assessing upper limb.

– Partial amputation of a phalanx, for example, would be considered as a complete loss of that part.
– When a vascular, tendon, muscular atrophy or chronic infection of any parts of the upper limb has been involved, the determination of the impairment deficit would include complications that resulted from that injury. This should not exceed 70 % for the right arm and 60 % for the left arm [16].

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