An overview on Dementia

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Dementia History

The word dementia comes from the Latin de meaning “apart” and men’s from the genitive mentis meaning “mind”. Dementia is the progressive deterioration in cognitive function - the ability to process thought (intelligence). The Oxford Dictionary defines dementia as a serious mental disorder caused by brain disease or injury that affects the ability to think, remember and behave normally.

Dementia history is old as like mankind. It starts from the foetus and it ends with human life. Also, in every language of world it has recognised as destruction of brain. In different languages the word have different concept, understanding and pronounced such as; in Greek- anoia; in Nepali- Pagalpan, madness, mental illness; in Hindi- Jadabhudhita insanity, craziness; in Chinese- craziness; In Japanese- Ninshishō, madness, crazy; in Irish-néaltrú; in Germay –Demenz, idoicy, mental deficiency; in Africa-dementia; in Arabic- لبخ , insanity, craziness, madness etc. These all referred a broad category of brain disease that is chronic and gradual decrease in the ability to think remember and person’s daily life disturbances.\

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The history of cognitive/memory loss problem is with the origin of mankind including animal species. It starts from the birth. In Ancient time (2000 BC) in Egypt, was considerable aware with mental life, heart and diaphragm was the sets of pathogenesis which makes the major problem with memory disorder. Additionally, Horatius, Plato seem to have thought that synonymous with senile dementia. Roman and Greek history has described as bizarre and atypical behavior of the person [1]. Galen and Hippocrates also described it as cerebral impairment and thought disturbances with the people in their book earlier. After that it was considered as different ways and different terminology. Particularly, Hellenistic writers (Aulus Amentia Celsus first century AD), Galen (130- 201) and Aretheus of Cappadocia explained about organic mental disorder and acute psychiatric and neurological disorder (end second century AD) wrote about the dementia [1]. At a middle age it was as a mysterious and less inspired concern problem with it. Between these days it was recognized with the different names like; Anoea, foolishness, idocy, insanity, alienation, fatuitas, senile psychosis, lethargy, phrenesis etc. A popular novel, "Guliver Travel" (1726) written by an Irish writer was also described about the memory problem in his travel with old age. Philippe Pinel (1745-1826), founder of psychiatry was described about the dementia in detail. In modern era after the description of Aloysius "Alois Alzheimers" (1864-1915) a German psychiatrist and neurologist identified that as "Presenile dementia" then dementia was considerable understanding its related disorder in the brain [2].

2. Dementia Scenario

Dementia is the gradual decline of mental functions and overall personality including cognitive problems will be appearing with patients. People with dementia gradually lose their previous skills, as well as other executive mental functioning like planning, judgment, abstract thinking and psychiatric disorders such as agitation, delusions and depression are very common in patients with dementia [3]. Dementia is a pathological process in the brain that reduces the quality of life and it caused by a number of different illnesses. As part of the normal aging process people may become more forgetful but it does not affect their daily living activities like dementia does. Dementia is therefore quite separate from the symptoms of normal aging. However, it can affect people at any age oh life [4].

World Alzheimer report, says dementia became as a part of Alzheimer disease because it covers all most 70% sign and symptoms [5]. It is significantly more common among elderly people. It is a syndrome that has been found almost exclusively in the elderly. Chopra,Cavalieri & Libon says that the prevalence of dementia increases with age and affects approximately 5-8 percent of individuals over age 65, 15-25 percent of individuals over age 75 percent and approximately 15-50 percent of individuals over age 85 [6]. It is important to note that it is not a normal part of aging.

Yet, most researcher says that there is not specific cause to lead dementia however the most common causes of dementia are: Alzheimer's disease, drugs and other substances alcohol, brain tumor, neurological disorders like- Parkinson's disease, Huntington's disease and head injury, malnutrition, endocrine abnormalities, infection of the brain, vascular dementia due to stroke, over excessive alcohol, Creutzfeldt-Jakob disease, nutritional deficiencies like- vitamin B-12 and folate deficiency, certain types of hydrocephalus, Porphyria etc [7].

According to most experts, there are three main categories of dementia; 1) early stage (mild stage) 20-24 out of 30 points MMSE score, 2) Middle stage (moderate dementia) 13-20 out of 30 points MMSE score and, 3) Later stage (severe dementia) 12 out of 30 MMSE score. Dementia can show ambiguous characteristics with longer periods it will progressively make the person more disabled [8,9]. Research reveals that the dementia is a significant public health problem so it should be considered as public priority that is under-recognized in primary care settings the rate of under diagnosed dementia is 65 percent by the physicians in community [10]. Furthermore, physicians do miss opportunities for the application of available treatments, participation in research advances, care planning and the support of caregivers [11].

A study was conducted to assess dementia care stress-provoking experience and examine perceived roles, attitudes, and anxieties for GPs and nurses working with people with dementia and their informal family carers within 298 doctors and 487 nurses. Fifty percent found dealing with people with dementia and their carers is stressful. GPs pointed out that negative attitudes to dementia care than nurses ($p<0.05$) and felt professionally they could provide less to people with dementia and carers ($p <0.05$) than nurses, reporting more difficulties with aspects of dementia care. For both GPs and nurses, factors out with their own profession's 'traditional' role were more stressful, e.g. responding to patients' behavioural ($p <0.001$) and social problems, were stressful for a greater proportion of GPs than nurses. Responding to patients' psychiatric problems was more stressful for nurses than GPs.

Pucci, et al., find that primary care physicians fail to recognize, findings & proper managements with the suspected demented disorders patients [12]. Both, dementia, and Alzheimer disease pose a significant public health issue. Since 1970s, China's population is aging due to the life expectancy and drastic reductions in fertility. It is estimated that about 5 percent of people (fewer than 65 years) suffer from dementia all over the world. Out of all types of dementia, more than half are due to Alzheimer's disease, a condition in which the brain produces insufficient amounts of a neurotransmitter called acetylcholine. Dementia is problematic as because it takes more time to diagnose due to its vague signs and symptoms and slowly it is going to be a future crisis. It is estimated that the number of people with dementia will double every 20 years to 81.1 million by 2040 [8].

Likewise, Alzheimer disease international and [13] estimates that the rate of dementia will double every year such that by 2050, more than 100 million people or nearly 1 in 85 persons

will be affected worldwide. In another study, [14] says that dementia is not exclusively a disease of older age and there are over 18000 people under the age of 65 living with dementia in UK [14]. The number of older people as a proportion of the population has been rapidly increasing between the 1964-1982 years. Thus, the number of older people (over 65) doubled while the population under 14 grew by only 20 percent [15]. In Canada and Australia accordingly 26 percent and 39 percent of physician's are regularly screening dementia [16].

Waldemer et al, believes that for assessment of dementia affected people is the main role by the neurologist. The neurologist can assess daily living activities of patients, cognitive impairment assessment with Alzheimer disease. Further to declare the dementia diagnosis process should be handled by a multidisciplinary team in primary care even though a team member of neurologist should be compulsory involving for finalization as well as should facilitate the development of multi- disciplinary teams for diagnosis and collaboration with multi-agency.

Iliffe, Mitchley, Gould & Haine, finds that to screen dementia the mini-mental state examination is important to test with the patient due to it's more reliable and valuable than other scales [17]. Even though due to the lack of specific knowledge/ skills among the general practitioners are not success to diagnose accurately. However there remain others influencing factors such as education, and age and valuable tools to diagnose dementia with the patients [18]. A further adds that early detection of dementia is more potential even though it is complex for both patients and medication treatment process to the HPs. Generally in the clinical practice the mini-mental test (folstein ME, Folstein SE) clock drawing test (verbal), 1-4 minute, GPCOG (verbal 4-5) minute & minute screen (verbal-7 minute) memory impairment screen (verbal minute), mini cog (verbal 2-4-5 minute) [19] are frequently using to approach the dementia problem.

In another study of Irish found that the delaying process in the diagnosis of dementia is 35 % by the GP in Ireland and almost GP blamed themselves the following factors are the responsible late presentation of dementia: 1) lack of time, 2) Lack of confidence, 3) lack of education, 4) Lack of health excess [20]. One study finds to achieve across the European Union approach to a timely recognition and diagnosis of dementia in primary care, by exploring the facilitators and obstacle. This study further suggests to improve timely diagnosis of dementia and to address the role of stigma perceived by physicians, to pay attention to early signs of dementia [21].

To adopt a stepwise diagnostic process, to promote collaboration in making, to make co-ordination and continuity for care, to facilitate by screening tools to diagnose care giving competence and suggestions to meet needs for care, to develop early psychosocial intervention activities, to maintain the patient's anxiety and depression. Factors affecting timely recognition and diagnosis of dementia across Europe: from awareness to the stigma [22,23].

In one study, the majority of GPs presented the lack of competence, lack of training, less performance to referral towards specialist inappropriate time, and significance difference in medication for prescribing in diagnosis of dementia. And also this findings show some noteworthy shortcomings in various aspects of dementia management by GPs is necessary to provide to continue educational support and training opportunities not only GPs team, but also their role should play in providing quality support to individuals with dementia in the primary care. In another study of Ireland regarding the GP's diagnosis process with the dementia was low performance [24].

Similarly in another study reveals that to identify dementia diagnostic barriers is needed to develop an urgent systematic GP training with dementia. Mainly it focuses on to diagnostic criteria about the memory problems (58%), thyroid gland test (77%), B-12 (75%) and folic acid test (57%) with the patients. More than one third GP were mentioned the difficulties to diagnose with normal ageing and the dementia according their overlapping symptoms because 90% GP were not undergone to take any dementia training therefore they had expected to improve dementia care and management by the systematic approach.

Early diagnosis is more significantly benefit for dementia patients and GPs because it helps to find accuracy detecting and to refer in the correct place for diagnose. The research suggests making belief between the values of early diagnosis, commitments developmental work needs to focus on investing training, facilitate to practice and reported practices. Similarly the another study (Mannheim, Germany) finds the early detection is more significant for both individual and medical research as well as for the general practitioners, who observes mostly in their general practice for early detection of dementia and emphasize the potential practice in normal practice towards the primary care settings in hospital. While general practitioners **(GPs)** have a central role to play in the effective primary care response to people with dementia and their families, concern has been raised as to the adequacy with which they full fill this role.

3. Types of Dementia

It is known that dementia is a progressive neurodegenerative disease so over the coming decades, it has become a set of the world's largest socio-economic healthcare burden issues. Alzheimer Society UK, claims that more than 60%-62% disease accounts as a Alzheimer's disease with the elderly followed by vascular dementia (17%), mixed (AD and vascular) dementia (10%), dementia with Lewy bodies (4%), fronto-temporal dementia (2%) and Parkinson's dementia (2%) [25,26]. According to the Alzheimer's society and Alzheimer association; Gupta, et al., ; Alzheimer Europe; WHO; Alzheimer's Association, UK; Knopman; Ganzer; Alzheimer's Association; Christensen & White, the types of dementias are given as below [27-33].

[Note: Here, the three (Alzheimer, Frontotemporal and Vascular) most common types of dementias have described a bit more than rare types of dementias].

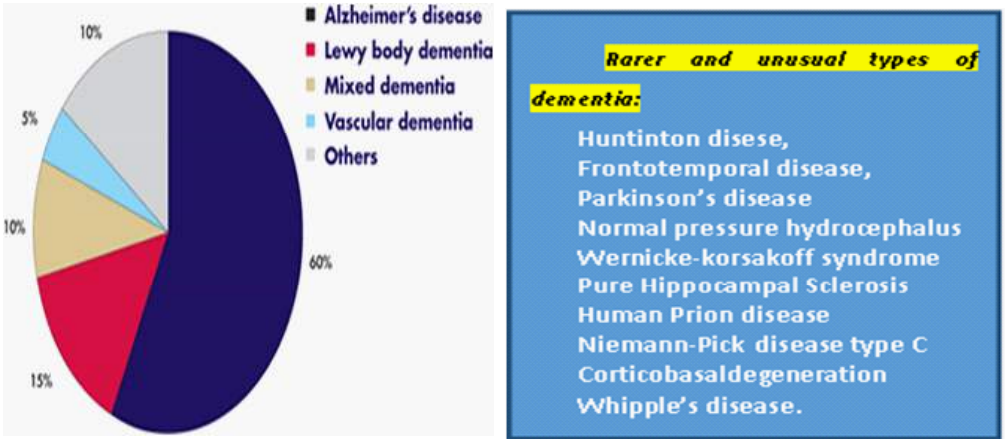


Figure 1: Types of dementia.

3.1 Alzheimer Disease

This disease was found by a German psychiatrist (a patients with 51- year-old woman Auguste Duter) after her death by brain autopsy while it was called senile dementia. After identifying in 1907 by "Alois Alzheimer", Alzheimer disease is considered as a global health issue over the coming decade that shows a progressive cognitive and functional decline in the patients. Alzheimer disease is an escalating epidemic. It is a chronic progressive neurodegenerative illness which clooacps of the cholinergic system and regulates acetylcholine in the brain [32]. AD has two forms- one is early onset that may appear in ages 30's, 40's, 50's and second is late onset. In general, AD develops after age 65. Research into its symptoms, causes, risk factors, and treatment has gained momentum during the past 30 years, even though it was investigating more than 100 years before.

This is the most common type of disease and its 70%-80% characteristics appears with dementia [34]. Apathy, depression, difficulty remembering names and recent events week judgment, disorientation, confusion, behavior changes and difficulty speaking, swallowing and walking are the symptoms of AD. In the later stage impaired judgment, disorientation, confusion, behavior changes, and difficulty, speaking, swallowing, and walking complication appear. The evidence of nerve cell in the brain may damage and death. Also, the hallmarks of brain abnormalities are deposits of the protein amyloid beta (plaques) and twisted strands of the protein tau (tangles). The three- Amyloid plaques, neurofibrillary tangles and loss of connection between neurons are the main hallmarks in the brain that is related with the AD.

It afflicts mostly elderly people with cognitive impairment that double every five years with the over 60 years [35]. If we talk about only U.S. population, has been estimated 5.2 million Americans of all ages have Alzheimer's disease in 2013 and is listed as six leading cause of death and fifth leading cause of death for those age 65 and over in U.S [36].

Patients with AD- Agitation, depression and language deficit are common [37-39] for elderly and depression is associated serious disorder [40]. Depressive symptoms in elderly age or patients appear as ranges 7%-42% [41]. Especially disorder and own by dementia is strongly

associated with the increase of cognitive dysfunction [42]. A next study found 20% persons are suffered by dysphoria and the same 20% were suffered by irritability and many kinds of depression. Researches from UK and USA showed that depression is one of the most and high rates in the population. Also, it is not short term illness requiring psychopharmacological treatment over short periods of time. Therefore, treatments need to be reliable and efficacy, but in an illness requiring long-term medication, acceptability to patients must also be addressed [43]. Likewise, agitation is another most important neuropsychiatric symptom with AD patients which has particularly shown emotional activities, aggressive behavior, irritability and psychomotor activity. Nearly 42% people developed agitation in one study, after 5 year follow up. In the earlier stages of AD, oxidative stress is an important cause in pathogenesis. So to reduce the stress the trial of vitamin E supplementation was in use with moderate to severe AD. Even though there is also controversial of using E and its reliability as general antioxidant therapies. The multiple contributing factors that develop the clinical manifestations of AD should be considered while designing anti-oxidative stress therapy.

Many risk factors can cause the AD. Among of them, the greatest risk factors are advancing age. However, younger than 65 of age can get the AD so age is not only part of risk factors for aging. Family history- genetics; APOE e4 gene-it is blue print of protein that can carry cholesterol in the bloodstream and 40-65 % can cause the AD; Traumatic brain injury-destruction of normal brain function by blow to the head; Mild cognitive impairment- mild and measurable changes in thinking; cardiovascular disease-smoking, obesity, diabetics Mellitus, high cholesterol, hypertension; education- higher level of education can connect neurons in the brain and reserve cognitive power but low level of education does not; social and cognitive engagement- socially and mentally active may support for healthy brain- are the main leading factors that can cause AD to the people [44].

3.2 Frontotemporal Dementia

FTD used to be called Pick's disease after Arnold Pick, a physician who in 1892 first described a patient with distinct symptoms affecting language. It is the second common cause of old age disease. It is also known as Pick's disease. Also, it can be referred to as Frontotemporal lobar degeneration, progressive Aphasia, semantic dementia. It affects the frontal and temporal lobes of the brain and it does damage to the brain and changes in personality, behaviors and difficulties with language. In frontal part of the brain, the lobes of atrophy, or shrink portions can be appeared. This disease may appear at the age of early age of person like 40s and its duration, of course, can be 10 years from the beginning. This holds account nearly up to 10 to 15 percent of all dementia cases even if it is called rare disease.

After Alzheimer's disease, Frontotemporal Dementia **(FTD)** a third cause, and vascular dementia a second common cause of dementia in the elderly. The FTD is a major cause of early-onset dementia and most common cause of neurodegenerative dementia, accounting for

3% to 6% neuropathologically diagnosed cases of dementia at all ages [45].

Frontotemporal dementia clinically remains poorly recognized. They further say that behavioral rational treatments of FTD are limited as well as clinical management is challenging and FTD, pathologically and clinically, can be overlapping with symptoms of motor neuron disease. Likewise, some other reasons, these may not be easy to diagnose like; there is not an appropriate diagnostic test, subtypes of FTD and its over lapping clinical feature alike vascular dementia, parkinsons disease and other dementias.

FTD is a progressive syndrome of neuro degenerative condition which typically appears in the age of 50s-60s of life, however, it affects in the most cases over 65 ages. FTD can distinguish in to four categories according to its pathological and clinical features they are: primary progressive Aphasia (impairment in language ability), behavioral variant FTD (socially inappropriate interactions and emotions), corticobasal degeneration plasy (muscle weakness and tremors) and behavioral change, communication changes, movement changes, are the main symptoms of FTD [46].

3.3 Vascular Disease (Multi-Infarct or Post-Stroke Dementia)

Vascular disease is the term which describes blood vessel disease. Three types of blood vessels: arteries, veins and lymphatics circulate the blood in the body, but when the circulation of blood becomes disturbances in the brain function. This is second most common cause (10-20 %) of dementia. Mainly, language problem, persons memory, other intellectual disabilities, impaired judgment, memory loss are the signs of vascular disease. Except this incontinence, weakness, paralysis, mask-face facial expression, non-cognitive hallmarks may appear.

Vascular dementia (all forms of stroke e.g., ischemic and hemorrhagic forms) is also a type of dementia. Alzheimer society UK, classified as three types [47]. For instance; stroke related dementia-post stroke, single infract multi infract- blood supply sudden blocked, narrow and cut off in the brain; sub cortical vascular dementia-blood vessels becomes twished, stiff and thick-means that damages the nerves fibers in the white matters, and mixed vascular dementia (10%)- similar AD and VaD characteristics. VAD according to its cause of damage in the brain and affected part of brain damage process. These are It represents 20-30 percent of all cases of dementia. And hypertension, diabetes heart disease and stroke are the major risk factors for VaD increase. Even though some of these risk factors are modifiable, there is not reliable study with this issue. Front temporal, Vascular and Alzheimer disease is complex to distinguish accurately and these all disease appears with aging [47].

The common symptoms in the early stages of vascular dementia are as following: difficulties with planning, organizing, making decisions, solving problems (e.g; preparing a daily common food), slower thinking, dis-concentrating, sudden confusion etc. Some person at the very beginning stages of Vascular dementia may also have difficulties with: language, memory recalling or past events (often mild) - e.g., low level of speech fluency, perceiving

objects etc.

Due to the overlapping of others dementia and psychiatric symptoms it has been misdiagnose. In general, medical chaos appears in following sectors like; chaos in cardiology test, genetics, anatomy and physiology, neurology and gerontology, endocrinology, surgery, MRI, CT scans etc. GPs are confusing with three diseases to diagnose and management in their practice. Cahill, Clark, Walsh, O'Connrll & Lawlor found in his (Ireland) national study 90 % had never undergone any dementia specific training and in another study blamed that (out of them 300 GP) GPs are afraid to diagnose and initiate treatment [24]. furthermore, lack of confidence lack of time- screening symptoms are missed during short consultation, therapeutic nihilism an absence of worthwhile treatment, lack of GPs education level, up to date with current issues, failure to diagnose by GPs are the leading factor to be misdiagnosed with the GP in their practice [20]. Also there are some controversies of myth such as; myth 1 says VaD is a nonexistent thing, controversy Myth no 2 is VaD is so difficult to diagnose that only experts can recognize and identify it accurately, and Myth no 3 is improvement in clinical trials of cholinergic in VaD is due to underlying AD, not to the vascular lesions.

Bradford, Kunik, Schulz, Williams & Singh summarized that the four factors (patients, GP, careers, and system factors) are the main obstacles to diagnose dementia in the proper way. So we may say that the medical mistakes (neurological exam, brain imaging, carotid Doppler ultrasound, and laboratory) are more to diagnose in that case with the GP and the rate of false positive and false of negative rate is increasing.

One study of medication of errors in elderly is great challenging. They pointed out that medication errors in geriatric patients is great challenging issue, following these cases: owing to the high prevalence of risk factors, the lack of sufficient evidence on the efficacy and safety of medications-donepezil, glantamine, rivastigmine and memantamine, and the many health system factors that contribute to the risks (e.g. several prescribing physicians responsible for the treatment of a single patient, inadequate continuity of care, and the low availability of clinical pharmacology and clinical pharmacy services) [47,49].

Midlov, et al, shows that another important of medication errors appears when elderly patients will be discharged from the hospital as well as primary care. Even though the medication errors and medication reconciliation using a medication report is a simple tool to minimize medication errors at discharge from hospital. The another study explore that general errors appear in these sectors like; a medicine-irrational, inappropriate, and ineffective prescribing, under prescribing and overprescribing; writing the prescription-prescription errors, including illegibility; manufacturing the formulation to be used-wrong strength, contaminants or adulterants, wrong or misleading packaging; dispensing the formulation-wrong drug, wrong formulation, wrong label; administering or taking the drug-wrong dose, wrong route, wrong frequency, wrong duration are the medication errors.

3.4 Dementia Lewy Bodies (DLB, 1912)

It may account 10% of causes of dementia. It shares the symptoms of Alzheimer's and Parkinsonism sings (shuffling gait, stooped posture, gait, rigid, slowness and poor balance). It sometimes referred to by other names, including Lewy body dementia, Lewy body variant of Alzheimer's disease, diffuse Lewy body disease, cortical Lewy body disease and senile dementia of Lewy body type. It appears a tiny, spherical protein in nerve cells even though any researchers are still confusing the casing factors [50]. Its genetic etiology is unclear -it is a complex brain disorder and a key member of the Lewy body disease spectrum is scattered.

However, the basic science knowledge of DLB has raised exponentially, in this field the nursing practice knowledge existence as lack of nursing practice.

3.5 Mixed Dementia

Mixed dementia is more common and it is characterized the abnormalities of AD, VaD and DLB [52].

3.6 Rarer and Unusual Types of Dementia

Alzheimer society UK refers to have rare cause of dementia as following; Corticobasal degeneration, Creutzfeldt-Jakob disease, HIV-related cognitive impairment, Huntington's disease, multiple sclerosis, Niemann-Pick disease type C, normal pressure, hydrocephalus, Parkinson's disease, posterior cortical atrophy, progressive supranuclear palsy and all these accounts for nearly 5% [46].

3.6.1 Pure hippocampal sclerosis: It can say that "mimic AD" and its characteristics show severe neuronal loss and gliosis of the hippocampus in the absence of changes present in other common dementias. A study was shown that is common for over 80-90 years compared to young age [52]. The neuronal loss and gliosis in the hippocampal formation is out of proportion to AD-type pathology.

3.6.2 Human prion disease: It occurs 0.1 cases per 100 000 persons; 85% globally: It is a group of neurodegenerative disease-a misfolded types of the prion protein. This disease affect to the mammals like; sheep, cow, and deer. The most common form of the human prion disease is sporadic, is also called Gertsmann-Straussler-Scheinker syndrome **(GSS)**, Creutzfeldt-Jakob disease **(CJD)**, fatal familial insomnia **(FFI)**, kuru and Variably Protease-Sensitive Prionopathy **(VPSPr)**. All forms of HPD caused under their principles; acquired, genetic or sporadic.Accuired types of this are scary and hard to catch so its common way is infections. The next type is "Karu"- it can pass one person to another person by cannibalishm, in Papua New Guinea. The next one is transferd by the contaminated milk of mad cow, is called bovine spongiform encephalopathy and the variant Creutzfeldt –Jackob disease **(vCJD)** is related with the human. That transmits via medical contaminated instrument, hormone supplements, transplant organ, dura matters (a part of brain), all these called iatogenic infections. It can harm

from 1 month to 1 year. Recently the group of found a new type of complex prion disease, was dubbed "variably prostate-sensitive prionopathy".

3.6.3 Niemann-Pick disease type C: Niemann-Pick are 3 Types A and B (NPA and NPB), and C. Type A and B also called Acid Sphingomyelinase Deficiency **(ASMD),** are caused by the deficiency of a specific enzyme, Acid Sphingomyelinase **(ASM)** [54]. Niemann-Pick disease C **(NPC)** also called as synonyms Juvenile Niemann- Pick Disease- is a lipid storage disease that can present in infants, children or adults [54].

3.6.4 Normal pressure hydrocephalus: Greek words "hydro" means water and "cephalus" mean head gives a word hydrochephalos. It is also known as "water on the brain". It may be acquired or congenital (appear at birth). Patients may show difficulty with walking, inability, memory loss, incontinent with urinary. Where on the brain- the much fluid covers and blocks the flow of cerebrospinal fluid and the fluid filled the ventricles of the brain that press down on and damage or destroy brain tissue. The symptom of NPH seems close to Alzheimer disease-like; walking problems and some symptoms of Parkinsons disease. This NPH accounts 5% of all dementias.

3.6.5 Progressive supranuclear palsy: A rare brain disorder that causes serious and progressive problems with walking and balance problems, frequent falls, and muscle stiffness, especially in the neck and upper body. It also affects eye movements. It present with cerebellar dysfunction similarly, in some rare cases, the symptoms seems alike of Parkinson disease and sometimes referred to as Steele-Richardson-Olszewski syndrome too. Therefore it (PSP) is often misdiagnosed because between Parkinson's disease, Alzheimer's disease, and rarer neurodegenerative disorders, such as Creutzfeldt-Jakob disease. Due to its less possibility for treatment- it is a life threatening disease to the patients. At first it was described in 1964.

3.6.6 Corticobasal degeneration: Rebeiz and his associates found this disease in 1968. A sporadic neurodegenerative tauopathy that begins to appear at the age of 50. It affects cerebral cortex and basal ganglia and is often similar with PD and FTD characteristics.

Since 50 years this disease has introduced by the neurologist as progressive supranuclear palsy and corticobasal degenerations. Also, clinical association with tau, pathological features, neuroimaging and CSF biomarkers between supranuclear palsy and corticobasal degeneration consists.

3.6.7 Whipple's disease: The combination of Greek words "trophe" means nourishment, "eryma" means barrier and founder name "George Hoyt Whipple" is called Tropheryma Whipplei-in short form "T- Whipple" or "Whipple". In 1895, Allchin and Hebb reported the first case of Whipple's disease however A 36-year-old doctor, who had gradual weight loss, indefinite abdominal signs and polyarthritis was the first patients to explain infection by tropheryma whippeli and found by George Hoyt Whipple in 1907. It has mal-absorption symptoms in an instance; weight loss, diarrhea, arthralgia, fever and minor gastrointestinal

complaints at first however it may affect to all part of body.

3.6.8 Parkinson's Disease (PD): It is called motor systems disorders which makes the loss of dopamine producing in the brain cells. Its main symptoms are tremor at rest, trembling hands, chewing swallowing, speaking, urinary problems or constipation, skin disruptions, arms legs, jaws and face rigidity or stiffness of limbs and trunks; bradykinesia or slowness of movement; postural inability, impaired balance and coordination, movement and postural instability and is estimated that 10 million people are living worldwide [55]. Also it may account 20% with the people after the age of 70. However, it may affect nearly the age of 50. Currently there is not gold diagnostic accuracy (blood or laboratory test) for PD diagnosis however the diagnosis is based on medical history, neurological examination, sometime brain scans also may refer by the doctors in order to distinguish this disease. The similarities of Lewy Body dementia and Parkinson's disease characteristics shares the confusing situation for the treatment process. Moreover, no specific clinical guideline in the context of both disease controversial treatment procedure [56].

3.6.9 Huntington's Disease (HD): It is known as Huntington's chorea. It is rare hereditary disorder cause characterized by dementia and uncontrollable movement, effects on central nervous, destroy the brain cells neurons. At first, in the 1840s, by physicians in the United States, England, and Norway attempt of a medical description for HD as "chronic hereditary chorea" was made two centuries later. Although, 1374, was considered an epidemic of dancing mania and was described in it was Paracelsus (1493–1541) who was first used the term chorea to define this movement disorder of central nervous system. The symptoms of HD seem like uncontrolled movements, loss of intellectual faculties and emotional disturbances. However, it may appear adult-onset between 35 and 50 years. A very few percentage 10% of patients may develop symptoms before age twenty. It is high chance to develop this disease if he or she has inherited gene to get sooner or later. The early symptoms of AD are depression, less confident for making decision, learning new things, remembering a fact, mood swings, irritability, or trouble driving. Further, as the disease progresses the intellectual tasks becomes difficult and concentration of mind on the work and feeding himself appears a burden to the patients. However, it may show vary on disease progression from person to person. The diagnostic process is complicated though the neurological and laboratory test may help to reach the close diagnose HD. The genetic impact is very rare.

3.6.10 Multiple sclerosis: In this, person's immune system attacks and the protective myelin cover the nerves. Myelin damage disrupts communication process between the brain and the rest of part of the body- the nerves themselves can be deteriorated, a process that's currently irreversible. No similarity between signs and symptoms, depending on the amount of damage and which nerves are affected. Person may lose the ability to walk independently and others during which new symptoms may develop.

3.6.11 Posterior cortical atrophy: Step by step and continuous worse of the outer part of the cortex in the part of the posterior brain is called posterior cortical atrophy. The affected part of the brain shows amyloid plaques and neurofibrillary tangles, like in Alzheimer's disease but in a different part of the brain. It may show the characteristic like Lewy body dementia Creutzfeld-Jacob disease and most cases from AD. For the treatment, no proven has declared but a bit of help might be from AD treatment- is acceptable.

3.6.12 HIV-related cognitive impairment: HIV-Dementia is a significant cause of dementia however, the prevalence of HIV-D has decreased significantly HIV is also related to have cognitive impairment caused by the attacking the body's immune system, inflammation and atrophy, making the person affected more susceptible to infection, motor deficits and behavioral. Also, HIV-infected person is becoming increasingly common as seropositive individuals live longer because of long-term antiretroviral treatment. The virus attacks brain astrocytes and neurons directly or indirectly by activation of macrophages. Therefore, it is an immunologic, inflammatory, and neurodegenerative disease [57].

Depression, extrapyramidal signs, covariates with significant hazard, motor disorder, cognitive deficits with the patients, motor disorder, and may be early manifestations of HIV-D.

3.6.13 Drug and drug abuse: Medications are common lawbreaker in mental decline. With the aging process, the liver becomes less able at metabolizing drugs, and the kidneys remove them from the body more slowly. By means of, drugs tend to collect in the body. Since more than 95% of the total energy requirement in the cells-that supplies by the mitochondrial oxidative phosphorylation. Destruction to the mitochondrial electron transport chain has been a vital causative factor in the pathogenesis of a range of psychiatric disorders. Therefore for the elderly people in poor health condition and those taking several different medications might be vulnerable. The list of drugs that can cause dementia-like; it includes anti-Parkinson drugs, anti-anxiety medications, antidepressants, antihistamines, cardiovascular drugs, anticonvulsants, corticosteroids, narcotics. Moreover unrelated disorder sedatives, coronary artery disease, chronic fatigue syndrome, fibromyalgia, retinitis pigmentosa, diabetes, hepatitis C schizophrenia, bipolar disease, dementia, Alzheimer's disease, epilepsy, migraine headaches, strokes, neuropathic pain, Parkinson's disease, ataxia, transient ischemic attack, cardiomyopathy, and primary biliary cirrhosis may appear however, there are large gaps in our knowledge to clear understanding.

3.6.14 Infectious cause of dementia: Some of the infectious cause may lead dementia sign and symptoms like; Indoparasitic (Lyme disease), Neuropshyilis, cerebral toxocariasis, neuro cyteserosis, Whipple's disease (infection by tropheryma whippelii), Neurocysticerosis (Taenia solium is acquired from eating infected meat) [58].

3.6.15 Viral infection: Viral meningitis, HIV/AIDS, Progressive multifocal

leukoencephalopathy are also responsible for the mental deterioration and decline of cognitive impairment. Later that shows the characteristics of dementia.

3.6.16 Bacterial and viral infections: Some fungal infection, T.B., meningococcal meningitis, Cryptococcal Meningitis are responsible factors to have dementia and dementia- related complications.

3.6.17 Creutzfeldt-Jakob disease: It is known as rare (1 in million), fatal brain disorder "mad cow disease" also and believed that to be caused by (infected with Bovine Spongiform Encephalopathy) consumption of products from affected (mad) cattle. It shows rapidly disorders of impairs of memory and behavior changes then appear Prion virus with the patients [58].

3.6.18 Wernicke-Korsakoff symptoms: It is a brain disorder disease losing the specific brain functions caused by the Deficiency of (B1) thiamin. It does damage the multiple nerves in both the brain and spinal cord and peripheral nervous system the cause is due to the malnutrition (lack of B1), heavy alcohol use of interferes with the breakdown in the body- that is common in alcoholism.

3.6.19 Stages of dementia: Still the progression stage of dementia has been discussed with the Health professionals -which refers to how far a person's dementia has developed. If the disease stages would be considerable that could help to the health professionals and caregivers to determine the appropriate treatment approach. Frequently the disease stages referred to as "early stage", "middle stage" or "late-stage" dementia, but often a more exact stage is assigned, based on a person's symptoms. Commonly used scales is the Global Deterioration Scale for Assessment of Primary Degenerative Dementia- it divides the disease process into seven stages based on the amount of cognitive decline. The GDS is most relevant for people who have Alzheimer's disease, since some other types of dementia (i.e. Frontotemporal dementia) do not always include memory loss.

The global deterioration scale for assessment of primary degenerative dementia (GDS) is also known as the Reisberg Scale. That can distinguish stages of dementia and on the basis of patients' characteristics.

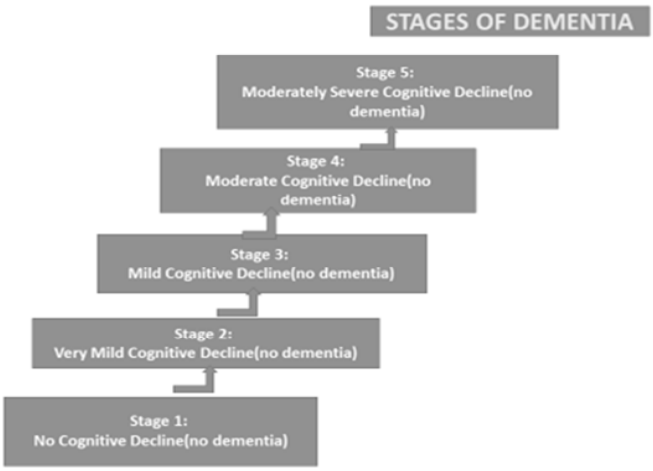


Figure 2: Stages of dementia progressive.

Table 1: Stages of dementia

Stage	Signs and Symptoms
Stage 1	In the first stage the person shows normal function, has no memory loss, and is mentally healthy. People with no dementia would be considered to be in Stage 1, is called no cognitive decline(no dementia)
Stage 2	In the second stage is used to describe normal forgetfulness associated with aging; for example, forgetfulness of names and familiar objects. Symptoms are not evident to loved ones or the physician. That is called very mild cognitive decline(no dementia)
Stage 3	The 3rd stage of dementia includes increased forgetfulness, slight difficulty concentrating, decreased work capacity and its average duration remains up to 7 years. People may get lost more often or have difficulty finding the right words. At this stage, a person's loved ones will begin to notice a cognitive decline. It is called mild cognitive decline (no dementia).
Stage 4	This stage includes difficulty concentrating, decreased memory of recent events, and difficulties managing finances or traveling alone to new locations. The average duration is 2 years. People have trouble completing complex tasks efficiently or accurately and may be in denial about their symptoms. They may also start withdrawing from family or friends because socialization becomes difficult. At this stage, a physician can detect clear cognitive problems during a patient interview and exam. It is called moderate cognitive decline(no dementia)
Stage 5	This stage duration holds at least 1.5 years. People in this stage have major memory deficiencies and need some assistance to complete their daily activities (dressing, bathing, preparing meals). Memory loss is more prominent and may include major relevant aspects of current lives; for example, people may not remember their address or phone number and may not know the time or day or where they are. It is called moderately severe cognitive decline (no dementia).
Stage 6	People in Stage 6 require extensive assistance to carry out daily activities. They start to forget names of close family members and have little memory of recent events. Many people can remember only some details of earlier life. They also have difficulty counting down from 10 and finishing tasks. Incontinence (loss of bladder or bowel control) is a problem in this stage. Ability to speak declines. Personality changes, such as delusions (believing something to be true that is not), compulsions (repeating a simple behavior, such as cleaning), or anxiety and agitation may occur. Average duration: 2.5 years. It is called severe cognitive decline (middle dementia) (mild-stage).
Stage 7	People in this stage have essentially no ability to speak or communicate. Its average duration is 2.5 years. They require assistance with most activities (e.g., using the toilet, eating). They often lose psychomotor skills, for example, the ability to walk. It is called very severe cognitive decline (late-stage dementia).

[59,60]. Beyond above-mentioned scale there are others scales that can use sometimes to define/screen by the HPs.

1) Functional Assessment Staging (FAST): It has seven-stage and focus of functioning and daily activities with cognitive decline. For example;

- In the first stage the persons seem no functional decline.
- In second stage the persons show as normal older adult functional activities. Person may have awareness of self and surrounding
- In third stage, the person shows a noticeable of early Alzheimer disease situations.
- In fourth stage the person shows the mild Alzheimer. At this movement, person needs assistance for complicated works like planning and banking works.
- In fifth stage, the person shows the moderate impact of disease while he/ she needs assistance for selection, deciding and choosing something else.
- In six stage the patients show the moderate severe AD characteristics and need help for common using or daily activities things like, bathing, dressing
- In seven stage of this test scale the person very severe loss of abilities in every aspects like; walking, smiling, talking listening etc.

2) Clinical Dementia Rating Scale (CDRS): This is widely used in dementia screening process globally. The health professionals can screen on the basis of 5 areas: memory, Judgement and orientation, community affair, problem solving and personal care.

- In the beginning stage of screening the health professionals observes the as normal as older people and give scores of no dementia.
- In second stage the HPs do screen on the basis of memory problems and its related

difficulties with time and daily impaired activities performances.

- In third stage: the HPs do the test of current and past events of the life, hobbies and their community independency.
- In fourth position the patients shows the profound memory loss and difficulties of disorientation with work, time, lack of judgement, handling the problems, disagreement of simple work too.
- In fifth stage the person shows the very severe memory loss and assistance of daily living. The health persons do the screen of problem solving abilities, concentrations, in side home and outside home activities, personal caring activities and properness.

4. Warning Signs and Symptoms for Dementia

Dementia is personal stories due to its umbrella term of disease and characteristics. It shows multi signs and symptoms with the disturbances of nerve cells in the brain with suspected patients [27]. The most common types of dementia are irreversible, meaning there is no cure. Below are most ten leading symptoms of dementia has presented. These are: 1) Changes in mood or behavior, 2) Changes in personality, 3) Difficulty performing familiar tasks, 4) Disorientation to time and place, 5) Loss of initiative, 6) Memory loss, 7) Misplacing things, 8) Poor or decreased judgment, 9) Problems with abstract thinking, 10) Problems with language [36].

5. Differences Between Normal Aging and Dementia

Is dementia, more than old age or something else? Or does the difference beyond the normal aging? What exactly are dementia and normal aging? Is memory loss not necessary to say dementia? What is actually confusing fact about dementia, that is not a dementia disease.

This is remarkable differences between aging part of life and disease of dementia. Nearly 40 percent has some form of memory loss in the elderly over the age of 65. It is known that if there is not any other medical malfunction with the memory loss is called memory impairment and is a part of a normal aging process [61].

American Medical Association, Alzheimer Society Canada, APA and John Hopkins Medicine have clearly mentioned the clinical criteria between the normal aging and dementia have different and highlights the minor forgetfulness is a normal sign of ageing but not sign of accurately of dementia. Most physicians make the diagnosis under the following criteria [61,62,63].

Table 2: Differences of normal aging and dementia**.**

Normal aging	Dementia
Slightly independency in daily tasks.	The person may need dependency from others with the simply work
Memory loss problem may be appearing but can provide considerable detail regarding incidents of forgetfulness.	If someone complains of memory problems and asks frequently about the recall problem is considerable notice of memory loss.
The individual is more concerned about alleged forgetfulness than close family members are	Close family members are much more concerned about incidents of memory loss than the individual
Recent memory for important events, affairs, and conversations is not impaired	Patients cannot remember even the recent memory of events and ability to converse are both remarkable impaired.
word-finding difficulties may appear occasionally	Frequently word-finding difficulties and substitutions may appear.
With the familiar territory, person does not get the problem but may have to pause momentarily to remember way.	Consequently, Person gets lost in very familiar territory while driving, at working office, on walking and supermarket as well as may take hours to return home too.
Individual operates common appliances even if unwilling to learn how to operate new devices	A person cannot learn even simple and new words and their application.
Does not seem no decline in interpersonal social skills	Person may show socially inappropriate behaviors like; less interest in social activities.
Due to the individual's culture and education the normal performance on mental status examinations may be differences	Mental status examinations may appear below-normal performance even though there are not any influencing factors like; education and cultural phenomena.

Source: [62,63,64,65]

In daily clinical practice, physicians confront elderly patients who suffer from some kinds of dementia. "Many physicians are used to defining of the cancer, neurological disorders, congestive heart failure, diabetics and chronic obstructive pulmonary disease and most do not diagnose dementia in the similar way. Although, how do define by these physicians to make the diagnosis? Also how do patients and caregivers, family member come up with this diagnosis? Therefore, the AMA has recommended that as above mentioned criteria determining the differences between dementia and normal aging for evaluation process.

Furthermore, elderly patients highly risk for the cognitive disorder, mood disorder, depression and chronological mental disorder at the end age of life. For the physician to distinguish between depression, delirium and dementia to the patients are quiet difficulties because the medical comorbidies and frequently changing characteristics of older persons. According to Insell, they showed the some criteria/differences to define between depression, delirium and dementia for the physicians [66,67,68,69]. See the below table.

Table 3. Differences between dementia, depression and delirium.

Features	Dementia	Delirium	Depression
Mood	Unstable	Fluctuates	Apathetic
Course, motion, movement	Chronic, with deterioration over time	Acute; responds to treatment	Chronic to treatment.
Inception/incubation	1 months to years (up to 10 years)	Some hours to days	Weeks to months
Memory/cognition	Impaired latest memory, As the phase of disease progresses, long term memory may affected, Other cognitive deficits like word finding, judgement and abstract thinking	Instant memory impaired, Attention and concentration Impaired.	Currentent memory impaired, Long-term memory generally entire, Sporadic memory loss, Poor consideration
Vigilance	Usually normal	Fluctuates-lethargic or hypervigilant	Normal way
Activities of daily living behaviors	May be unimpaired early rising behaviors, disability as disease progresses	May be intact or impaired	Negligence basic self-care

Commencement	Usually gradual, over several years and sneaky incharacteristics.	Acute or subacute (hours or days)	Typically over days or weeks may concur with life changes
Activities of daily living	As the disease progresses phase ADLs may be intact early, impaired before.	May be intact or impaired	Might be impaired early sign.
Duration	It may take some months or over a years and progressive degeneration	Many hours to days (Although it can take a month too)	It ay takes from two weeks to several months to years.
Self-conscious	Apparently unaware of cognitive crunch.	It seems slightly aware of changes in cognition and rocky.	Likely to be concerned about memory impairment.
Thoughts	Repetitiveness of thought decreased interests, difficulty for logic or formal argument. Slow brain and lazy actions, delay response.	Weird and vivid thinking scary thoughts and ideas, Paranoid schizophrenia symptoms.	Often slowed thought processes may be preoccupied by sadness and hopelessness, negative thoughts about self-reduced interest.
Sleep or rest	Often a disturbed 24 hour clock mechanism (later in the disease process).	Confusion disturbs sleep(reverse sleep-wake cycle), Night confusion, Vivid and disturbing nightmares	Early morning waking or intermittent sleeping patterns (in atypical cases, too much sleep)
Course	May be variable depending on type of dementia.	Fluctuates- usually worse at night in the dark, Coherent periods.	Commonly worse in the morning with improvement as the day continues.
Orientations	Increasingly impaired sense of time and place.	Flicker impairment of sense of place, person, date, time and seasons.	Usually normal.
Spontaneous	May be able to conceal or compensate for deficits (early), frustration, helplessness, impatience, negative, hostile, impulsive, anger, instructions, break down tasks step-by-step and answer repetitive questions.	May occur as consequence of a drug interaction or reaction, physical disease, psychological issue or environmental changes.	Often disguised and may have past history with the patients.

6. Proposed Dementia Treatments in the Current Practice

Worldwide dementia is rapidly being recognized as one of the most significant medical issues in older people. A variety of medicines used to prescribe at different times for people with dementia according to types of disease such as Alzheimer disease, dementia with lewy bodies, mix dementias and other rare types of dementias. A wide range of herbal remedies, medical foods, and dietary supplements are prescribed to promote memory issues or to prevent Alzheimer and related dementias. The established treatments are only able to relief the symptomatic nature in the patients, however, to make proof rigorous scientific study is required. Most medication are used for Alzheimer related dementia in the clinical practice because Alzheimer's disease accounts for up to 80 percent of all dementia cases. Knowing the crucial characteristics and pathology of each dementia can help in the accurate diagnosis of patients, so they can receive the proper treatment and services for their highest possible quality of life. Among of them, three cholinesterase inhibitors are prescribed for the treatment of first stage of dementia disease. These drugs work by blocking the enzyme **(acetylcholinesterase)** which destroys neurotransmitters for memory, called acetylcholine. These drugs commonly show improving result within the six months of treatment periods [70].

However, the questions are how dementias can be treated?-If the almost dementias are incurable except some exceptions (vitamin and thyroid hormone deficiencies dementia can be treated with the supplements). As well as, brain tumours, hydrocephalus or head injury can be treated by surgically. Also behavioral disorder type of dementia and neurodegenerative type

of dementia can be treated such as: high blood pressure and over cholesterol. A wide range of medications have been showing for mild, moderate and severe type of dementia issue can be treated. However not for everybody these prescribed drugs will be benefited, yet. Because more than 50-60 conditions can cause the symptoms of dementia." and "dementia-related disorder (can only be) distinguished from other dementias at autopsy. Most of the medications have now emerged as a baseline of major cause of mitochondrial damage, which may explain many adverse effects. The current medications are not able to cure dementia however such medicines may help to minimize without side effects and can help to improve temporarily slow down symptoms and their progression [70]. The causes of unable to treat the dementias are that- it shows a dozens of causes of behavioral, neurological and psychological signs and symptoms (depression, agitation, aphasia, gout, pain, hallucinations, ideas of persecution, anxiety, sleeplessness, misidentification of relatives or places and aggressive behavior with psychological characteristics) that can be misdiagnose or over diagnose therefore the treatment may not be accurate without the combination of specialist such as; neurologist, geriatrician, psychogeriatrician, neuropsychiatrist, psychologist.

The U.S. Food and Drug Administration **(FDA)** has recommended two types of medications like; 1) Nemenda (Memantamine), It may use for severe Alzheimer type dementia but it is not used if have allergic. And 2) Cholinesterase inhibitors eg; Excelon, Aricept and Cognex (Tacrine) to treat the cognitive symptoms of Alzheimer's dementia disease. Moreover, doctors have been prescribed the following medicine: donepezil (a piperidine derivative), Rivastigmine (Exelon), Galantamine (Razadyne), memantamine, vitamin E to treat cognitive problem [44] and Benzodiazepine to reduce the cognitive impairment. These have been avaible in the market over 10 years for the treatment of AD. All of these treatment have been accepted on the basis of health economists and national formularies questioning to use economically. Donepezil is accepted in India, Romina, South Korea, and some europan countries and mementamine is approved in Brazil, Argentina for vascular dementia. All of these drugs is based on the treatment of AD and its efficacy. In China, there are some practice with the Chinese practitioners like; acupuncture; herbal medicine-Ginkgo biloba (Ginkgoaceae) an ancient Chinese tree; Yizhi treatment- kami-Uman -13 medicinal plant; Chato-san- a Japanese treatment but Chinese medicine with 11 medical plant; Silymarin-milk thistle protect liver toxicity; Radix Ginseng-for neurological benefits and Danshen Root- for help inhibit inflammation in the brain even though no strong evident with it [71]. Similarly, Mulberry fruit is also helpful to protect for against memory impairment and vascular dementia and same way; in Hindu religion there is belief as a non-pharmacology like; aromatherapy, exercise, light therapy, Yoga etc can be useful.

Moreover, different researchers have been discovering new innovative ways on dementia treatment even though these are as alternative ways to minimize the dementia. Among of them some alternative coming research on regarding with dementia-like; oral calcium consumptions,

coenzyme Q10, Tramiprostate, Phosphstidylserine, Huperzine A are significantly useful for Alzheimer related dementias. Green tea and black coffee shows less dementia risk, sunshine's influence to the patients might be useful for dementia risk, coconut oil is useful for dementia low rate [73], Serve over brown rice and Cauliflower flavor are rich in neuro protective curcumin cancer, safeguarding brain cells from harm [73], Beer's Xanthohumol Offers neuroprotection-moderate beer (Silicon in beer) consumption may reduce the risk of Alzheimers; People with higher levels of the omega-3 fatty acids found in fish oil may also have larger brain volumes in old age equivalent to preserving one to two years of brain health. In Alzheimer's disease, the hippocampus begins to atrophy even before symptoms appear, Intranasal Insulin can fight to reduce the symptoms of Alzheimer dementia and improve cognitive function in patients with diabetes.

A study from Stanford University school of medicine has published Marijuana may significantly useful for early AD deficits. That may start to open the blocking brains nerves, plaques, and A-beta substance and demonstrate a strong hallmark clumps in the brain with patients. Walton (mouse model) showed, however, there is not more scientific proof, but anti-cancer therapy seems to reduce the cognitive dysfunction in the patients who are using anti-cancer therapy. One of the most important symptoms of Dementia is cognitive impairment in the patients so its relation is with between the anti-cancer therapy and dementia. Let's have hope, Alzheimer society's flag drug investigation group is exciting for the new approach in developing treatment in the coming years but need lot of research work on it.

7. Clinical Diagnosis Differentiation of Major Dementias

A dementias diagnosis criterion is not clear yet- it depends on forms of dementias, symptoms and pathologies.

Alzheimer Association USA; Seeley and Miller; Muangpaisan; Karantzoulis and Galvin have given a very clear clinical diagnosis differentiation of major dementias as following. Therefore, the pathology of each type of dementias can give a way in the accurate diagnosis of dementias forms. The below table shows the major clinical differences between the forms of dementias. All types of dementias decline the part of brain and its activities such as: affects more than one of the following four core mental abilities, the ability to learn and recall new information, the ability to plan, reason, solve problems and focus on a task, the brain's ability to translate visual signals into a correct impression of where objects are in space, the ability to write or speak, or to understand written or spoken words, the ability to understand and use symbols and maps.

Table. 4: Clinical Differentiation of the Major Dementias.

Types of dementias	Image of brain	Sign and symptoms	Mental status of Individual	Neuropsychiatry	Neurology
Alzheimer's dementia	Himpocampal atrophy, cortex and entorhinal	Memory problem(mild-moderate stages)	Consisting of a series of loose of memory	Normal phase of memory seems in screening.	Initial conditions seems in neurone
Vascular dementia	Cortical and/ or subcortical infarctions, confluent white matter disease	Often but not always sudden; variable; apathy, falls, focal weakness	Frontal/executive, cognitive rate low; can spare memory	Apathy, delusions, anxiety	Usually motor slowing, spasticity; can be normal
Fronto-temporal dementias	Frontal, spares posterior parietal lobe, insular, and/or temporal atrophy.	language; hyperorality poor judgment/insight, speech/	Frontal/executive, language; spares drawing	Apathy, disinhibition, hyperorality, euphoria, depression	May have vertical gaze palsyalien hand, or MND, axial rigidity, dystonia,
Dementia with Lewy-body	Posterior parietal atrophy; hippocampi larger than in AD.	Visual hallucinations, delirium, Capgras' syndrome, parkinsonism, REM sleep disorder	spares memory; drawing and frontal/ executive; delirium prone	Visual hallucinations, depression, sleep disorder, delusions	Parkinsonism
CJD(Creutzfeldt-Jakob Disease)	Cortical ribboning and basal ganglia or thalamus hyperintensity on diffusion/ FLAIR MRI	Movement disorders, mood, anxiety.	Variable, frontal/ executive, focal cortical, memory	Depression and anxiety	rigidity, parkinsonism, Myoclonus,

8. Who is Who in Dementia Diagnose, Management and Care?

It is already known that a key person is GP for dementia diagnoses- GP is a first focal point of contact-usually begins with a GP. General Practitioners **(GPs)** and the primary care team are uniquely situated to play a central role both in the diagnosis and ongoing care of dementia. GPs face several challenges in fulfilling this role owns.

The GP can refer a person to a Psychiatrist of Later Life or a Geriatrician to obtain specialist support during the course of the condition. Where a person is under 65, a neurologist may be the consultant referred to geriatrician. A GP diagnose the type of dementia, cognitive impairment, changes that emerge and how you can manage symptoms and medication, blood pressure, cholesterol and general health. However this issue has rising in UK regarding with the fee of GPs. GPs will be paid 55 pounds for each patients and every time to declare dementia. GPs need to visit more time of the diagnosis and treatment of dementia within primary care. People with dementia who need to go five-six- even-eight or nine times, and then referrer to a memory clinic. There might be another false probability to be referred by GPs for memory clinics. With dementia there is factual reason why primary care can't give its right contribution on diagnosis and care on right time, that is why dementia diagnosis is being overburden to the patients each time to visit the GPs- only 45% formal diagnosed [74,75].

Nurses are crucial of management and care. There are considerable gaps in the staff's knowledge to provide effective knowledge [76]. A health nurse works with people in their homes, in care center and hospital to help them, to manage their health condition early identification of dementia and the formulation of management strategies for patients and their carers. By their wide range of skills and knowledge increase family and patients' awareness of the early identification and the negative impact on people with dementia and their carers [77].

The goals of nursing care person with dementia in hospital and community settings include: develop the dementia friendly relationship like empathy and trusty, supports for patients for self-care and their loved ones for effective communication, maintain the safe environment for patients, promote the persons' social engagement.

Therefore, those nursing staffs working close to the other staff and residents assess their observations that can prevent unsuitable elucidation and lack of information. Also, RN's companionship can find what the staffs are doing and RNs needs to be developed [76].

9. Who is Dementia Specialists?

This is a complicated disease to diagnose dementia by the only one doctors so multi-experts team is necessary for accurate diagnose. The referring process to the neuropsychiatric, geriatric and neurology in dementia might have an important element for the further assessment [78]. Not only medical doctors, any type of medical doctors can diagnose the problem of seniors complication like urinary tract infections and others primary care health. According to has recommended visiting, below explained health professionals [75]. For example:

9.1 General Practitioners

Cognitive tests are the mainstay of measure and evaluate cognitively, or 'thinking', functions such as memory, concentration, visual-spatial awareness, problem-solving, counting, and language skills. So Most doctors use to test cognitive screening tests when assessing these functions. If a further more detailed test is required they can refer to a neuropsychologist- a psychologist specialising in the assessment and measurement of cognitive function.

9.2 Neurologist

Doctor who specializes in conditions which affect the brain -is neurologist. When a person is under 65 and has dementia they will often work with a neurologist who can help them to cope with the diagnosis and manage symptoms as they emerge. A neurologist, physician/ family doctors, a geriatrician, a psychiatrists can diagnose others complication out of memory clinic. It is considered that to the first visit to the GP or physician because they may have some insight any kinds of medical hidden changes may occurring that cannot diagnose by the others experts.

9.3 Geriatrician

The geriatric assessment covers multidimensional, multidisciplinary domains such as functional ability, physical health, cognition and mental health, and socio-environmental circumstances of elderly [79]. Geriatrics will have a specialization in the physical illnesses and disabilities of old age and the care of older people. Usually he does clinical assessments all the physical examinations of hearing, urinary continence, daily living activities, fecal, adomen, tremer, rigidity, heart, blood, glucose, balance and cognition etc. A geriatrician is often involved in working with people with dementia to help to manage symptoms and talk

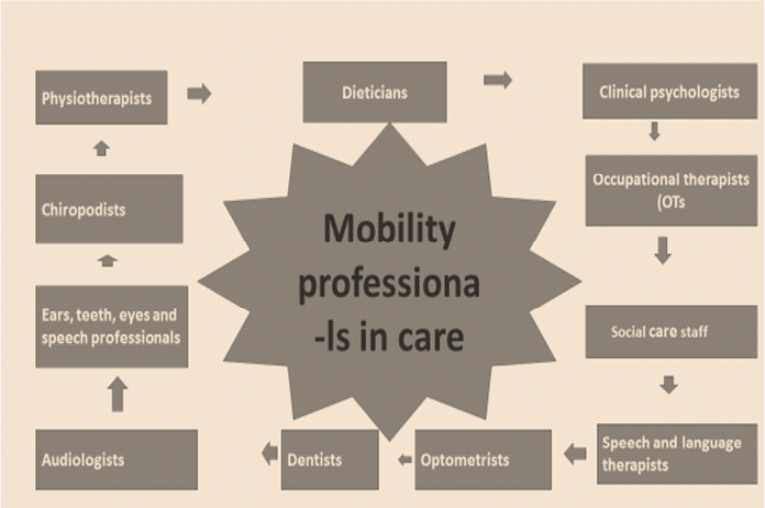
about medications.

9.4 Psychiatrist of Older Age or Later Life

That doctor who specializes in the mental health of people over 65 is called Psychiatrist of Older Age or Later Life. This doctor works with people with dementia who experience depression or who experience symptoms that affect their personality and behavior. This doctor can help you to manage symptoms and work with you to develop strategies to cope with your diagnosis.

9. 5 Support of Mobility Professionals

Dementia diagnosis is referred to the following professionals if suspected for further. That has been given below in flow **figure** no 3.



So, this above figure means that a multi-expert team is necessary to diagnose dementia, not only by the GPs, psychiatrist, neurologist and geriatrician. In the sense of Occupational Therapists **(OTs)** care, they can provide an especial care of the whole person and focus to be on activities of daily living like; dressing, eating and grooming, bathing, neat and cleaning etc. Its main goal is to restore and reduce the decline in the person's functional ability and to play in assessing suitability for assistive technology. Likewise, physiotherapists can have the aim to maximise the person's abilities regarding mobility to allow the greatest level of independence possible and to make a vital role in falls risk-assessment. Speech and Language Therapists **(SALTs)** can help on improving quality of life of patients by maximising communication ability and cognitive function. Also to assess swallow and advice regarding food and drink consistency with the dementia patients. A further, social workers can play a role in need of proper assessment, counselling in people with their service entitlement. As well as, in protecting the rights of people with dementia and safe guarding the health and welfare of primary caregivers. A person with dementia needs a special care services by the speech and language therapist, ENT (ear, nose, teeth/throat). They can provide assistive technology- assistive, adaptive and reahabilitive devices and services to the patients. Except these, there is some others treatment approaches like;

- **Cognitive stimulative therapy**-(This approach focus on actively stimulating and engaging for person using theme-based activities to learn environment in a small group setting.

- **Environmental modification**- It has aim to improve cognitive power, orientation, awareness, visual power, and auditory power minimizing glare, visual clutter, noise reverberation and providing cues.

- **External memory aids**- (aimed at helping individuals with memory issue in daily activities can apply electronic and non-electronic devices that might be Personal Digital Assistants **(PDAs)**, clocks, message boards, and other pictorial things),

- **Memory training programs**- (if focus the spaced retrieval, errorless learning, procedural memory stimulation, vanishing cues, and didactic approaches for improving memory skills with the patients).

- **Montessori based training**- (using real-life materials, designing activities of interest of persons, allowing learning to progress in sequence, minimizing risk failure and maximizing success rate, and breaking down activities into component parts and practicing these one at a time, reality orientation training),

- **Reminiscences training** - (an intervention methods using art music and photos of past activities, events, and experiences) that uses the life of history and experience of an individual to increase sense of well-being),

- **Simulated person therapy**- (This approach is emotion-oriented approach that helps to reduce the levels of anxiety and challenging behaviors with playing audio recordings of the voices of loved ones/neighbors'. This approach has been used to improve well-being of minimizing agitation and withdrawal behaviors in the patients who have hearing and retained communication skills.

- **Validation therapy-** a approach that involves validating or accepting reality, beliefs, values of person that helps to share the person's individual feelings, reduce stress can be utilize.

Diet modification approach- this approach can apply by the dietician aiming at altering the viscosity, texture, temperature or taste of food. The food temperature and taste alertness might be a significant alert of sensory for swallowing and preferences.

10. Diagnostic Criteria of Dementia

Question is how dementia diagnosed? Doctors can apply/employ the verities of diagnostic criteria or strategies to the suspected person due to lacking of gold standard guideline. Therefore, dozens of trial based practices and maximum reliable of techniques have been used to assess the dementia with reasonable accuracy options. At present the DSM-IV-TR (APA, 2000) American psychiatric association is the most commonly used methods at globally. Most research studies

(APA, 2010); Chen, Lin & Che, World Alzheimer report, Alzheimer association UK, American Psychiatric Association have common agree with the following diagnostic criteria to define dementia patients. These are given below box [80,81,82].

Language (aphasia), Motor skills (Apraxia), Object recognition (Agnosia),
Head injury: Repeated concussions, loss of consciousness (e.g., football, boxing, risky sports, and occupations, wrestling),
Poor cardiovascular health (reduces blood flow and oxygen to the brain), strokes etc.
Age: the probability of dementia approaches over 60 ages
Diabetes: type of diabetics
Stroke (blocked blood supply in the brain)
High cholesterol: in arteries reduce oxygen level
High blood pressure, neurological examination, cognitive and neuropsychological tests, brain scan,
Obesity and lack of nutrition, Body mass index: Overweight and obesity
Lower educational level
Sleep apnea: it reduces oxygen to the brain and cognitive deficits
Impaired vision or hearing
Gait: "asymmetrical" and symmetrical" based on limb movement or a shuffling gait (like elephant walking symptoms)
Infections: longitudinally in body, wound.
History of family genetic –(5% of the incidents of dementia diagnoses)
Pressure, depression, delirium, all the psychological assessments, behavioral assessments, daily living activities
Drugs: previous using drugs, current using drugs, and other chemical effects, poisons, side effects of drugs, benzodiazepines etc.
Alcohol consumption before and current time
Environmental factors: Lead, metal, iron, copper, jink
Assessments of between other types of dementia and overlapping characteristics and others disorders.
Comorbidity: hypertension and others blood level status

In Nepalese medical context dementia screening and management, protocol has adapted from mhGAP- IG [83]. These are as following domains: Ask the Medical History- Is there a clinical history of pathology dysfunction, previous medication consummation, and all the physical examinations- Goitre, any kind of pain, urinary infection, poor appetite, constipations, strain, dependency for caring, slow pulse, wandering, dry skin or hypothyroidism?, sexually transmitted infection or HIV?, cardiovascular risk factors?, hypertension, hyperlipidaemia, diabetes, smoking, obesity, heart disease, previous stroke or transient ischaemic attacks) Poor dietary intake, malnutrition, anaemia, alcoholism?, cognitive test – subjective memory impairment test, language test, activities of living, such as family member and their activities- smoking, early morning wakening, drinking, personal hygiene, mental state like- mood, depression, suicidal thoughts, hallucinations, delusions etc.

11. Dementia Treatment Gap

Prince has reported that the dementia treatment gap of dementia is significantly high in even high income countries as well as in middle income and low income countries [84]. Still the low level of dementia awareness, specialist care services, primary health care access and long term support care are not sufficient therefore the public awareness, care effectiveness,

community health care services, interventions program of comorbidity, cognitive, mental and physical health, ageing, their access- affordable, accessible health care is essential worldwide for the health professionals, caregiver and patients since all of these can lead treatment gap. Alzheimer society UK, revealed a new figure of wide variation in people are receiving diagnosis [85]. Diagnosis rates range from 31.6 per cent in East Riding of Yorkshire to 75.5 per cent in Belfast [85].

Similarly, in 2021, over half a million people will be living with dementia that has gone undiagnosed. A new partnership between Tesco, Alzheimer's Society and Alzheimer Scotland have for the first time mapped the state of dementia and diagnosis levels in the UK and announced bold plans to help fight the disease.

In high-income countries, only 20-50% of dementia cases are recognized and documented in primary care [86]. This 'treatment gap' is certainly much greater in low and middle income countries, with one study in India revealed 90% remain unidentified [87,88]. Approximately 28 million of the 36 million people with dementia have not received a diagnosis. If we talk only about UK, It is projected up to 90,000 patients are living without diagnosed dementia [85]. Therefore do not have access to treatment, care and organized support that getting a formal diagnosis can provide [86].

12. Dementia Misdiagnose and Mismanagement by the Health Professionals. Why?

Dementia consists of combination of 100 types of characteristics that is why diagnosis of dementia may be delayed or missed because early onset symptoms develop gradually and are often associated with the normal aging process. Also, symptoms of dementia can mimic as of a variety of disease conditions like; depression, delirium neurological disorder and other psychological disorders which can have all forms of dementia. In addition, a misdiagnosis and its mismanagement of the underlying cause of dementia is possible because there are many associated causes, among of them can be difficult to diagnosis and management due to their hidden causes. The journal of American medical association highlighted the nurses six steps to manage dementia across all settings to help clinicians and effectively manage: 1) symptoms identify, 2) early behavioral systems screening, 3) delineate the triggers and risk factors, 4) appropriate intervention at the care spot, 5) evaluate the intervention, and 6) follow the patients' improvement [89].

According to World Alzheimer Reports and Alzheimer Association USA, the following are common for misdiagnose and mismanagement with the suspected dementia patients by the health professionals [44].

12.1 Alzheimer's Disease Over-Diagnosed

With all of the dementia patients may have the memory issue in first phase. Also it is well-known that the AD patients and normal aging people may have the similar features like;

memory loss or forgetfulness, whereas there are many other less severe possibilities those may be noticed in the 30's and 40's.

12.2 Tremor, Stiffness and Shakiness Need Not be Parkinson

To define the PD vital sign consider like tremor, stiffness and shakiness however that reality may have come from with other disease.

12.3 Dementia May be a Drug Interaction

At the end of age the person may show the multiple side effects by the drug user. It might have like the symptoms of declining of mental as dementia, stoke or AD.

12.4 Undiagnosed Stroke may have to Aphasia

If who becomes inability to speak, it may have either aphasia or stroke and other mental complication.

12.5 MTBI Misdiagnosed

The symptoms such as dizziness or vertigo is also complicated to take diagnosis of brain injury that may go overlooked. The symptoms has also relate to a mild brain injury- fall down, that could have occurred days or even weeks ago. Vestibular dysfunction, causing vertigo-like symptoms, is a common complication of mild brain injury.

12.6 Manic-Depressive or Bipolar Disorder Conditions

Manic-depressive disorder with many patients is confusing to physician, rather than a psychiatrist or psychologist.

12.7 Eating Disorders Under-Diagnosed in Men

Behavioral and eating disorder is female quite strange with female than male therefore the result is that men with eating disorders often fail to be diagnosed or have a delayed diagnosis.

12.8 Mild Traumatic Brain Injury often remains Confusing

The severe brain injury might have to miss to distinguish between a mild concussion and "mild traumatic brain injury". MTBI symptoms can be mild, and can continue for days or weeks after the injury.

12.9 Manic-Depressive or Bipolar Disorder Conditions

Manic-depressive disorder with many patients is confusing to physician, rather than a psychiatrist or psychologist.

12.10 Add Under-Diagnosed in Adults

The controversy diagnosis of ADHD in children is a well-known however it is associated to adults.

12.11 Normal Brain Pressure or Hydrocephalus Condition with as Dementia

It may be misdiagnosed with Parkinson's disease or dementia (such as Alzheimer's disease). The condition is too much pressure in CSF and too much fluid on the brain.

12.12 Undiagnosed Parkinson's Disease and Related Disorder

A PD and rare genetic disorder is often misdiagnosed for men in their age of 50's. The Fragile X disorder show mild symptoms in the early years and Parkinson disease.

12.13 Post-Concussive Brain Injury often Misdiagnosed

Players and army who works hard exercise in their profession may suffer a concussive injury in brain and variety of symptoms can occur like; post-concussion syndrome and these were not being correctly attributed to their concussion injury.

12.14 Children and Migraine often Misdiagnosed with Children

A migraine can sufferers to child, but can’t be well diagnosed.

12.15 Undiagnosed Anxiety and Depression

Anxiety and depression are associated symptoms so it may also have undiagnosed.

12.16 Undiagnosed Depression in Teenagers

The normal depression or normal mood is quit doubts to declare with younger ager that can cause severe medical ignored.

12.17 Vitamin B12 Deficiency Under-Diagnosed

Vitamin B12 deficiency shows some complication to the person relatively with dementia symptoms so it is high possibility to misdiagnosis of various conditions, such as multiple sclerosis.

13. Obstacles to Diagnose or Contributing for Timely Diagnosis, Effective Management and Care for Dementia.

Risk of dementia and AD begins in the Womb [90]. Dementia can be an unpleasant and social burden disease. Diagnosis and management barriers are presented with regard to primary care doctors’ factors, patient factors and carer factors. These some issues are: time, communicating the diagnosis, negative views of dementia, difficulty diagnosing early stage dementia, acceptability of specialists and responsibility for extra issues, knowledge of dementia and ageing, less awareness of declining abilities and diminished resources to handle care, not specified guidelines, poor awareness of epidemiology and less confidence to advise [91,92,93,94,95]. Moreover, detail in below table.

Table 5. Obstacles to diagnose or contributing for timely diagnosis, effective management and care for dementia.

1. **Patient factors.**	**2. GPs factors**.	**3. Care givers factors**
Residence in backward community.	Lack of knowledge/skills/ training and guidelines.	Younger age of caregivers.
Overlapping characteristics of dementia.	Probability of misdiagnosis.	Lower level of education and Knowledge of dementia.
The nature of personal behaviours (Extrovert/ talkative or introvert/ shyness).	Lack of time to consult.	Lack of cognitive changes and normal ageing.
Family status (Married, unmarried, widow, single, and class of society).	Medication confusing and delaying to referral.	Limited treatment options.
Personal alertness.	Specialist access.	Limited knowledge of dementia; psychiatric, normal ageing.
Refusing further assessment.	Prioritize treatment of physical health problems.	Misuse of medication and follow up.
Patient's lack of insight.	Early diagnosis is a hangout for family and patients.	Delay referral.
Miss-understanding of end age life character.	Negative view of dementia to diagnose.	Denial to know the diagnosis of dementia.
Perception of limited treatment options.	Less concern about possible burden issue.	Low insure, value of diagnosis and treatment in time.
Less concern of treatment.	Desirability of early diagnosis.	Hesitation or fear of risk.
Denial of assessment or treatment.	Less prioritize to discuss cognitive problems.	Emotional, financial or other burden of diagnosis on the patient's autonomy.
Unwillingness, less confident, fear negative perception.	Avoidance of pressure from patients and caregivers for intervention.	Insecure feeling to address the dementia.
Less priority for dementia diagnosis and cognitive impairment.	Perception of limited treatment options.	Uneasy feelings to communicate.
Multi-cultural and language barriers.	Lack of standardized validated screening protocols.	Lack of Interpretation to physicians.
Forgetting to mention cognitive symptoms.	Uneasy or not feasible of practice.	Lack of physicians.
Fully determination on physicians to make diagnose.	Discomfort administering assessment.	Social value and norms towards caregivers.
Education Status.	Not to have familiar with the existing guide lines.	Lack of experts caregivers.
Money, transportation.	Less access to MRI and CT.	Lack of health services knowledge.

Above these are the most observing barriers to diagnose the dementia for the primary care. On the other hand, the 20th international conference of ADI KYOTO declaration has suggested an action plan for dementia to minimize the problems. These following 10 overall recommendations may help to minimize the dementia problem. These are; a) Provide treatment in primary caregivers, b) Make appropriate treatments available, c) Give care in the community, d) Educate the public, e) Involve communities families and consumers, f) Establish national policies, programs and legislation, g) Develop human resources, h) Link with other sectors, i) Monitor community health, J) Support more research [96].

14. Screening Tools for Dementia

In the clinical praxis, no ideal answer of the best dementia screening instruments with the general practitioners therefore between guidelines and practice in primary care is still a wide gap. In general practice when a person comes with complaining memory problems needs a number of detail tests for strong proof for further diagnosis. A key issue is what dementia assessments

scale is appropriate for assessment because there are verities of tools have been discovered [97]. The selection of the most appropriate tools depends on the physician's perception, knowledge and time for each test. Even though these following tools are commonly found easy to administer, effective, clinically acceptable and minimally affected by gender, ethnicity and education [98]. Mostly these test will diagnose in four ways like; cognitive power, recovering power, recalling power and motor activity. However, many pieces of researches argue that the diagnostic methodologies make the difficult for accuracy of screening test of dementia. Additionally the screening instruments are in limited level to examine in huge number of population. APA (2000) has suggested diagnosing the dementia under the base of cognitive impairment and other aspects of clinical fact- impairment functions, behavior disturbances, cost stress and access (APA, 2000). Although the DSIM- IV is the best using tools in US society and it is a more reliable instrument in the current practice globally [99]. Assessment of dementia scales summarized by Sheehan, in different areas, these scales should use according to their areas [98]. For example:

14.1 Cognition Screening for Dementia

1) Test your memory [100],
2) Six-CIT,
3) Abbreviated mental taste score,
4) Addenbrookes cognitives assessments,
5) Mini-cog [101],
6) Clock drawing,
7) GPCOG
8) Memory impairment screen,
9) Mini-mental test,
10) Montreal cognitive assessment,
11) Cambridge Assessment of Memory and Cognition [102],
12) Longer cognitive assessments.

14.2 Functional Test

1) Bristol Activities of Daily Living Scale **(BADLS),**
2) Instrumental Activities of Daily Living scale,
3) Barthel index [103],
4) Functional Independence Measure,
5) Informant Questionnaire on Cognitive Decline in the Elderly **(IQCODE)**.

14.3 Behavior Test

1. Neuropsychiatric Inventory,
2. Cohen-Mansfield Agitation Inventory,
3. BEHAVE-AD.

The hospital anxiety and depression scale:

Hospital Anxiety and Depression Scale,

14.4 Care Burden Scale

1. General Health Questionnaire, 12-item version [104],
2. Zarit Burden Interview,

14.5 Over All Dementia Severity

1. Clinical Dementia Rating scale ,
2. Global Deterioration Scale,
3. Clinicians Global Impression of Change (CIBIC-Plus),

15. Quality of Life Test

Generic measure of health-related quality of life,

15.1 Dementia-Specific Quality of Life Instrument

1. Alzheimer's Disease-related Quality of Life scale (QoL-AD),
2. DEMQOL,

15.2 Depression in Dementia Test

1. Geriatric Depression Scale **(GDS)**,
2. Cornell Scale for depression [105],
3. Hamilton Depression Rating Scale [106].

15.3 Other Tests

Carlson, Abbey, Kocur, Palk, & Parker has summarized the following others tools that might be useful for cognitive evaluation test for elderly.

- Revised Memory & Behavioral Problems Checklist **(RMBPC)**
- Informant Questionnaire on Cognitive Decline in the Elderly (Short Form) (IQ-Code)
- Caregiver Strain Index: This is used for to identify the strain of carriers with yes- no type of 13 questions [107].
- The Kimberley Indigenous Cognitive Assessment **(KICA)**: This test is valid for older Indigenous Australians.
- Rowland Universal Dementia Assessment Scale **(RUDAS)**. It is used with the multi-cultural populations in Australasia however an Indian study has proofed to use in outside Australia because it shows useful [108].
- Confusion assessment methods.

Anxiety Perception Test.

- Verbal Fluency FAS-[109].
- Test of Every Day Attention-**TEA**.
- Rey Ostereith Complex Figure Test- **ROCFT**
- Anxiety Perception Test.
- Functional Rating Scale for Dementia **(FRSSD)**.

- Beck Depression Inventory **(BDI)** – [110].
- Telephone Instrument for Cognitive Status **(TICS)** [111].
- Paper and paper test.
- Cantab mobile test (Hull clinical research group, 2010). For more info-http://www.cambridgecognition.com/healthcare/cantabmobile.
- Mattis Dementia Rating Scale.

Here, it is discussed that some of the most commonly used tools, these can address the neuropsychiatric symptoms, cognitive functions, and over all dementia symptoms.

16. Abbreviated Mental Test Score (Amts-1972)

A clinician-rated 10 item scale and it was introduced by Hodkinson in 1972. It is developed by Geriatrician in 1972 and is quick to screen. Very easy and simple to perform to score even though it has less Sensitivity=70-80%, Specificity = 71-90% and validity with the data. An Italy study showed all screening levels was higher for males vs. females, for younger vs. older, and for more educated vs. less educated subjects. For more info-http://www.patient.co.uk/doctor/abbreviated-mental-test-amt.

17. Six Item Cognitive Impairment Test (6-Cit, 1983)

It is suitable for general use and it was used in EU assessment tool. Kingshill Version 2000 was developed in 1983, by regression analysis of the Blessed Information Memory Concentration Scale **(BIMC)**. It is widely used in primary care because it takes less than five minutes. However, it is suggested that at the 6CIT has advantages over the MMSE in hospitals settings. Also, it is (6CIT) a much newer test than the Abbreviated Mental Test. For more info-http://www. patient.co.uk/doctor/six-item-cognitive-impairment-test-6cit

18. Clock Drawing

This is very easy test and is useful for illiterate person even though there are wide range of devised version are avaible. Typically asking a drawing a clock to the patients with its number and hands in the paper used to measure fast cognitive test. Its sensitivity (85%) and specificity (85%) is high. However, it assesses only a very narrow part of cognitive dysfunction of dementia, and many other conditions. To score, it may takes not more than 5 minutes and coring methods are fair.

19. Mini-Mental State Examination (Mmse, 1975)

This test was developed by Folstein and mostly (50%) used in general practice to assess the immediate memory attention, orientation, recall, visuo-spatial skills and calculation however, there a bias with the cultural and educational with the scores. This scale was more standardization after the improved by. It remains the most frequently used cognitive screening instrument [112]. The MMSE has a maximum score of 30 points. Mild Alzheimer's disease: MMSE 21–26, Moderate Alzheimer's disease: MMSE 10–20, Moderately severe Alzheimer's

disease: MMSE 10–14, Severe Alzheimer's disease: MMSE less than ten. To score out of 30, it is suggested to< 24 for dementia stages-it may take about 10 minutes. The restriction of copyright on the use of MMSE can be purchased from PAR, INC. by calling (813) 968-3003.

20. Neuropsychological Test Batteries

There is evidence that neurological test batteries can pose the significance validity test results with common symptoms schizophrenia and others disorders. This test can show the sufficient effort using embedded effort measure [113]. Also, the Neuropsychiatric Inventory Questionnaire **(NPI-Q)** is a short format of test and it can assess the persons's neuropsychiatric symptoms and carer distress. http://www.health.nsw.gov.au/pubs/2003/pdf/care_dementia_guide.pdf.

21. The General Practitioner Assessment of Cognition (Gpcog)

It is used in primary care and it includes cognitive tests- a clock drawing task, time orientation, report of current and past and word recall that all takes 5-2 minutes. It is reliable in primary care practice settings- is psychometrically robust and free of educational bias. It can assess within 6 minutes. Brodaty et al., found a sensitivity of 0.85, a specificity of 0.86, a misclassification rate of 14%, and positive predictive value of 71.4% in the test. For more info-http://www.patient.co.uk/doctor/ general-practitioner-assessment-of-cognition-gpcog-score.

22. Memory Impairment Screen (Mis)

It has 4- item test and considered appropriate for use with ethnic minorities because it does not show educational and language bias. To improve discrimination in screening for AD and dementia the MIS has good alternate, high construct validity for memory impairment, and good discriminative validity in terms of sensitivity, specificity, and positive predictive value. And also it takes 4-minute for test with four-item, delayed free-and cued-recall test of memory impairment. For more info-http://nationalmemoryscreening.org/secure/12/ nmsd/Screening%20Tools/2012-MIS.pdf

23. Mini-Cognitive Assessment Instrument (Mini-Cog)

Mini-cog is used for 3 minutes in the primary care setting including with 3 item recall item test and a simply clock drawing test. It can detect mild cognitive impairments well variety of different dementias and is less affected by subject ethnicity, language, and education. For more info- http:// geriatrics.uthscsa.edu/tools/MINICog.pdf.

24. Test Your Memory

This test was developed in 2009 with 10 items of cognitive test to be self-administered questionnaires [100]. The score is 50, while person gets 30 or below. This test is attractive for the general practitioners in their clinical room due to its time friendly in primary care.

25. The Cambridge Assessment of Memory and Cognition (Camc)

This test CAMC is developed to assess the cognitive section of the comprehensive CAMDEX including a wide range of cognitive functions, language, praxis, calculation, including orientation, abstract thinking, attention and memory perception [114]. The screening time is 25–40 minutes but needed at least moderate training for clinicians for administer. It shows a well against with MMSE test with excellent sensitivity and specificity for dementia and added an advantage to generate the MMSE score.

26. Geriatric Depression Scale (Gds)

This test is most commonly used for depressed person among the elderly. There are 15 shorten items self-rated through and assessor. GDS scale takes 5-10 minutes to assess the patients in institution care. Also it shows more sensitive and reliable for older people but it is not useful for moderate to severe dementia because the demented patients can rate the difficulty comprehensive questions. For more info- www.stanford.edu/~yesavage/GDS.html.

27. BEHAVE –AD (Behavioral Assessmenr)

This test assesses the most important disruptive behaviors overacting, aggression, psychotic symptoms, mood and disturbances. This test is commonly used in interventional research studies. It covers most of the important disruptive behaviors, including aggression, anxiety, sleep disorders, and over activity. It takes 20 minutes for clinicians. For further info: http://www.dementia-assessment.com.au/behavioural/BEHAVE-AD.

28. Hamilton Depression Scale

Hamilton test [106] is commonly used to assess the depression of patients. It requires 25-30 minutes with a semi-structured interview by well trained professionals. This test mostly used in antidepressant drug trials like MADRS and assess the psychological activities. For more info- http://www.psy-world.com/online_hamd.htm. and http://healthnet.umassmed.edu/mhealth/HAMD.pdf.

29. Clinical Dementia Ratings

This is believed that clinical dementia rating scales is more reliable to coordinate than MMSE. It assesses the daily activities and cognitive abilities with a few minutes. But the assessor should be familiar of the individual cases, is effective for moderate to severe dementia patients. For more info- http://www.dementia-assessment.com.au/global/cdr_scale.pdf.

30. Dementia –Specific Quality of Life Test

This is used to measure the overall quality of person's life with the 13 item instruments. It is considered a reliable and validated test for patients. All together this test takes 10-15 minutes for clinicians.

31. The Functional Assessment Staging Tools

The FAST test is designed for the assessment of functional change in aging and dementia and it gives rate of the functional change in 7 main scale with the 16 successive sub stages [59]. For more detail- http://ec-online.net/Knowledge/articles/alzstages.html.

32. Abbey Pain Scale

This scale is best used to assess an overall pain management. For more info found at: http://www.apsoc.org.au.

33. Early Identification/Diagnosis/ Treatment for People with Dementia

In the dementia history the most common forms of AD was found in the age 50s of a patient's case study in Germany by a German Psychiatrists Alois Alzheimer. It means that was the landmark of early onset evidence, the dementias is not a part of normal aging or late onset forms only. However, no one consider the early onset disease can appear with the younger age. The most common forms of dementia is AD and also, vascular demenot, korsakoff's syndrome, Alchohal related dementia, Parkin's disease, Huntingons disease, HIV-AIDS, people with down-syndrome and some learning disabilities, and multiple sclerosis may develop as early onset of the patients in their life [75]. Also, the rare forms of dementias and genetics types can affect the 30s to 40s of ages.

There is universal belief that dementia is an ambiguous, nonspecific and unrecognized by the HPs in their practices because it is not expected with the younger age. In UK, nearly 60% people are struggling as dark for diagnosis that means younger people are not getting high perception of clinician for diagnose [115]. The doctors may not aware when a person goes with the complaining the dementia symptoms at the first visit. Since, people with EOD are in their 40s and 50s; they may physically fit, aware of their symptoms, able to working at the time of diagnosis, have a dependent for children/parents at home, have vital financial commitments (food, shelter, mortgage, children fees, etc.), find it hard to accept losing skills, difficult to get information, support and services adapted to younger people with dementia [61]. Some clinical person may not have diagnostic confident; as a result, getting a proper detection and management can be frustrating and long [116]. Most research has shown a significant fact over 10 years, with early dementia diagnosis case is undiagnosed in the primary care [117]. Despite this, the appropriate test tools are lacking there and people with dementia never get diagnosis in the primary care. It means that the demented person and his/her family always looking for effective treatment with stress [118]. Also, it has vague process, iatrogenic illness and diagnostic cost in the hospital as well [119].

Therefore, there is the better solution to minimise the rate of diagnostic errors by improving the HPs skills toward the dementias. Earlier diagnosis is the first step to understand and manage the disease condition. It is appropriate, reliable, desirable effective for several

causes that allow family, patients, clinician and health care institution to make more plan effectively for the future. Even though, there is not similar believe with early diagnostic benefits in the past, there was argued of benefit of an early diagnosis since the people with YOD seems physically strong, healthy and they could reluctant to see themselves as aged-care clients and economically able to earn. There is common believe, the early diagnosis helps to reduce the catastrophic events like accidents, save the nursing care cost and quality of life and others harmful incidents events [120]. However, the wide range of research is required to expand it, aiming at what clinical diagnosis can show more effective for YOD.

The onset of dementia is often not possible to identify with easy diagnostic process when first symptoms appears [121] has identified some indicators of early dementia that may offer for carers and professional for assessment. The person can show more apathetic with less sparkle, less desire hobbies or activities, unwillingness for new things, unable to adapt to changing societies and life style, poor judgement/poor decisions, slower response for complex ideas, blaming to others for 'stealing' things, materials, money items less concerned with emotions and feelings, selfishness, forgetful of details of recent events, repeating themselves or lose the thread of their conversation, irritable or upset with simple matters, have difficulty handling banking process like deposit/withdrawal money.

Since the last decades the definition of dementia has been refined- professionally, socially and culturally formulated as the elderly disease. However, the prevalence and incidence rate of dementia are unknown globally, there are a number of 'pre assumption'. The preliminary consensus of Australia was announced about 10,000, In UK 15,034 in 2007 and in japan 30,000, in 1995 people had early onset dementia although, the Services for people with young onset dementia are completely ignored in the hospital setting and community. The early onset dementias do effects on families, their dependent young children, and the economic implications are particular challenges. In one study of Japan, the forms of dementias such as vascular dementia was found more common (42.5%) followed by Alzheimer disease (25.6%), head trauma (7.1%), dementia with Lewy body/Parkinson disease with dementia (6.2%), frontotemporal lobar degeneration (2.6%), and other (16.0%) with the young populations [122]. Likewise, a study from Sydney showed that the alcohol-related dementia with young age was most high (18.4%) among of 204 patients, followed by AD (17.7%), vascular dementia (12.8%), and frontotemporal dementia (11.3%). This prevalence shows the higher rate than before from UK, and Japan [123].

The literature of Thomson, focused the good practices of service model for early onset. These are: timely diagnosis with prompt referral services, sufficient information and deliver, differentiation between dementia, later life, and YOD, financial commitments, employments for care giving and responsibility for dependent children, identification of crucial difficulties faced by younger and their caregivers, and multidisciplinary team, respite services with age appropriate (younger Onset Dementia Social Support and Respite care) etc.

In Aurelian states, YOD and their family careers are getting services from Alzheimer Australia. Similarly, the others countries have started as first step to develop targeting to YOD services and advocates in the UK- by Alzheimer society UK, In Ireland-by [75].

The main reason of YOD have vary, what disease occurs in life of the person. At age of 40s and 50s is quiet difficult than 60s to define ahead [124]. Social care institute for excellence listed a number of relevant factors that lead to have YOD. The first factors were history of past and current concerns of person. Accordingly;

- The changing life style meaning,
- Continued mobility and physical strength,
- Financial capacity and responsibility to the dependency children,
- Genetic transmission,
- The expectation of family, friends,
- Society and society patterns, social network,
- Self-confidence and satisfactions with the goal of life,
- Issue of social settings status-like, social position, social relationships, economy status, independency with others,
- Down syndromes,
- Learning disabilities- aphasia, dyslexia, Intellectual impairment,
- All forms of dementias,
- Alcohol-10% (Royal College of Psychiatrists and Alzheimer's Society),
- Drugs misuse,
- Other external environmental characteristics and
- Other physical dysfunctions (neurological, psychological, neuropsychological, anatomical and physiological issues).

All most all, screening tools are carried out with the huge experiment (population based) even though do not provide a diagnosis of dementia- only, they offer indicators for further clinical evaluation. Therefore, the screening should not be determine on the basis of "population-based" –(within a certain age group) because the dementias are vague and, complex process [125]. Rather, initial dementia assessment criteria can be useful for every suspected patient [126]. The initial interview should have with the family members and caregivers asking in details of -

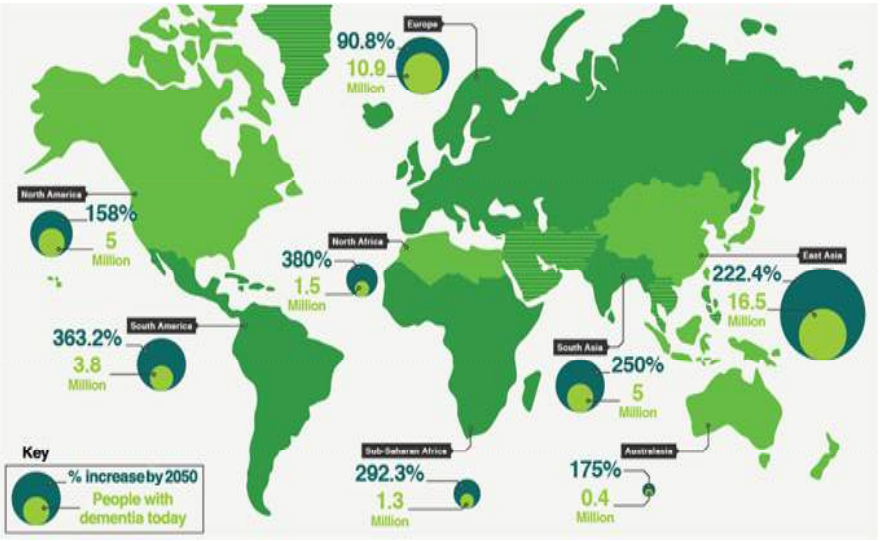
- Individuals' history of past and present (current functioning, memory status, cognitive issues, safety activities, behavioral activities).
- Medication/ medical history- head trauma and some neurological functioning, poly pharmacy.
- Geriatric situation-constipations, vision, hearing, depression, vision, falls and fall related injuries, osteoporosis, sleep disorders, continence and others activities, chronic pain, balance, hypoxia, anemia, postural hypotension, physical appearance,

gait, Katz index of independence in activities of daily living etc.

- Social engagement/participation.
- Preventive medicine- review of Immunizations, cancer types, diabetics, HIV.
- Family interview- asking a social attitudes (positive-negative), perceptions and relationship.
- Cognitive incapacity and problem behavious.
- Laboratory test- CBC, TSH, drug level-digoxin/lanoxin, toxin, Glucose, BUN/ creatinine, level of cholesterol, diabetics, cancer, liver functions, VDRL-screening test for Syphilis), Calcium, B12,b6, haemoglobin rate, vitamins-A-B-C, iron; zinc; and other trace minerals deficient etc.
- Therapeutic test-
- Lawton instrumental daily living activities scale.
- Genetic test-ceruloplasm, huntigton's disease, copper, wilson's disease.
- Brain imaging- Hydrocephalos, mass lesions, infarcts, and subcortical ischemic changes,
- And using the above mentioned tools.
- Lumber puncture test- (spinal cord, cerebrospinal cord, and other neurons).
- Anasthesia using, operations of tumors, kidney failure, hurt and lungs, kidney transplantation, chronic infections,
- Patient's nutrition- body weight, height and good looking body figure.

34. Prevalence of Dementia

In the coming next few decades dementia will a considerably increasing issue with large number of the elderly. Mainly the dementia is increasing in Northern America and EU even though; the dementia is spreading worldwide unexpectedly. Population of ageing is a worldwide increasing that shows the successes of improved health care over the last century. Mainly dementia affects at old age, although it may appears before the age of 65. Alzheimer's disease international 2013 shows the fact of growing prevalence as given below **Figure 4**.



Data **Figure** source: The global impact of dementia 2013-2050, Alzheimer's disease international (December 2013).

Increasing rate of dementia in developing countries is dramatically upcoming therefore it cannot be overlooked less concerned issue but there is lack of scientific research to claim the fact data. Already 62% of people with dementia live in developing countries, and by 2050 this will rise to 71%. Additionally, in another study it is estimated that developed and developing countries 35.6 million people lived with dementia worldwide in 2010, that numbers expected to almost double every 20 years, to 65.7 million in 2030 and 115.4 million in 2050 [82,127].

The estimated number of Europe demented population will be per year about 4.1 million in the year 2050 and the working-age group will considerably decrease during the next 50 years. Nearly 7.1 million dementia cases faced 493 million persons in working-age in the year 2000. This equals a ratio of 69.4 persons in working per one demented person. And it is estimated that until the year 2050, the financial and emotional burden placed by dementia on the working-age population [128].

It is estimated that 6 % to 10% [34] of individuals of aged 65 years older people affect by dementia. Similarly, in another investigation, 40% of those aged 90 to 94 will suffer from dementia [129]. A majority population of US affected by dementia and related disorders and the cost of dementia care is high, annually, per older patient by $4134, with 75% of these increased costs attributable to nursing facilities and hospitalization [130].

In 2010, 58% of all people with dementia lived in countries with low or middle incomes, with this proportion anticipated to rise to 63% in 2030 and 71% in 2050 [131]. According to [132] the estimation of worldwide prevalence of dementia is 24 million and its ratio may reach 40 million by 2020 and 80 million by 2040. Mainly the Prevalence of dementia seems in high throughout developed countries than in low- and middle-income countries. However, [131] reveals that in 2010, 58% people with dementia will remain in low or middle income countries and this proportion will rise respectively up to 63% in 2030 and 71% in 2050.

The prevalence of diseases such as dementia is nearly 42 million in 2012, with approximately 4.6 million new cases a year. These figures would increase up to 300% by 2040, with an impact on expenditure of over US$ 422 billion [133]. In Canada the number of cognitive impairment and related disorder of dementia is rising sharply and that figure stands at 747,000 and will two fold to 1.4 million by 2031 [61]. In Australia, 2007, it was projected that by 2050 there will be 220,000 people will be affected and by 2050 will reach 7300001 [134]. So if we could prevent or delay the risk of dementia it would major benefit of society.

35. Worldwide Cost of Dementia

Dementia is not only rising issue for family, it is spendy disease on the non-residential care, nursing care and care home by its fees charging. The below figures no. 5 successively

shows that "if dementia care would be country, it could be the world's 18th largest economy, ranking between Turkey and Indonesia [135]. Likewise, if dementia care was a company, it would be the world's largest by annual revenue exceeding Wal-Mart (US$414 billion) and Exxon Mobil (US$311 billion). And the next figure shows costs of informal care- unpaid care eg., families and others- and the direct costs of social care- care professionals and in residential home settings- contribute similar proportions (42%) of total costs worldwide, while direct medical care costs are much lower (16%). In low, middle and high income countries it shows only 1%, 10% and 89% of the costs in dementia. So it is said that nearly 70% of the world wide costs goes in two regions like: North America and western EU. In a comparison these accounts for by the much lower costs per person in lower income countries– US$868 in low income countries, US$3,109 in lower middle income, US$6, 827 in upper middle income and US$32,865 in high income countries" [44,50,74,136-138].

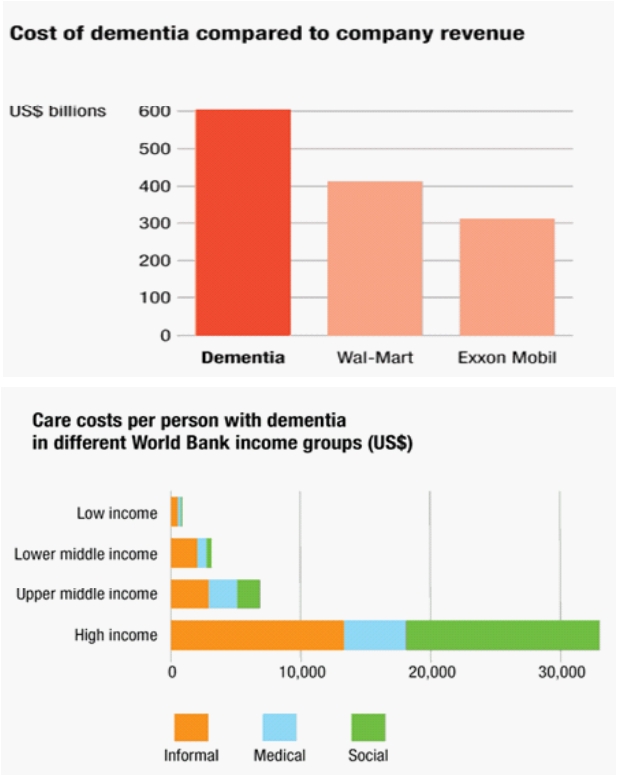


Figure Source: Alzheimer disease international, 2013.

36. Dementia Care in Home, Community and Institution

Dementia patients need the varieties of care- because it needs long term caretaker support- including medical care, nursing home care, community care, palliative home care, respite care and institutional care. In the medical care the doctor visits the patient to provide services like; consultations, assessment, further management of the patient's condition. These services/cares do keep clients healthy and functionally able at home and in the community for as long as possible, for this reason delaying institutional care such as admission into a nursing home. The next service is home nursing care. It provides nursing care such as in managing and reviewing the care plan of the patient, in consultation with doctors, as well as training caregivers in basic care, wound dressing, stoma care and insertion of nasogastric tubes in the

patient's own home or in nursing hospital [146]. Home Instead Franchising and Ireland's home for senior care support and information; have suggested the following 12 dementia care tips, which can mention in every aspect of dementia caring tips.

- Smile: make smiling and positive body language, tone and avoid coarse voice.
- Stop: think the best way to do.
- Explain: let him/her the information of address and situation where you are and what you are doing.
- Go slow: go slow even if you hurry, things to do a lot but your patients do not have.
- Go away: if the person is aggressive let him/her alone, give them settle down latter.
- Be kind/polite: always give space providing love her/his activities
- Give them space: do not create gap between him/her that I am ignoring from the care person.
- Know the person: be around as necessary, reduce the annoying cause instead of agree.
- Do not argue: demented person cannot be usually wrong so avoid to say WRONG or RIGHT you have done.
- Stand aside: Let him/her care and the feeling of security as necessary but not the front of the person, where you may be a target to kick or enemy etc.
- Monitor: do the monitor of excretion, consume food, fluid, urinations, constipation, dehydration, confusion, delirium, medication interactions, any kind of post operations periods and its risk.
- Distract: speak disrespectfully to about the past matters that makes pleasure.

36.1 Home Care

People with dementia will need a strong support in home as the disease gets worse. A family or caregiver can provide the help them by trying to understand that how people can perceives his rest of life in community and at home. A home can make individual care, personal control and decision making, smaller scale living arrangements, greater environmental texture [121]. According to Kitwood, dementia people care needs are as mentioned in five principles way. These are; comfort, attachments, inclusion, occupation, and identity. Health professionals and researcher are still trying to discover and refining the best dementia care option at home but the following general strategies can be effective evidence for care.

Maintain the daily routine: Get introduces the major and common plan such as: what comes the next.

- **Apply the music therapy:** Music can reduce the depression, agitation, and aggression. Music can be an effective dementia therapy.
- Encourage the independence: make positive reinforcement and reduce the assistance dependency.

- **Ccommunications:** Minimize the distraction such as focused conversation, get attentions listening, calling by their name, speaking slowly, using simple words, provide words if person is interrupting and struggling words, familiar words and looking.

- **Bathing:** The dementia person cannot control his/her bathing procedure as proper way. So should try making limit bathing. Does he /she need full or part shower every day? get prepare for pre and post plan of bathing materials, temperature settings like warm the bath room, explain step by step of the functions what happens then and going to be a needed, manage the easy way of shower and reduce the risks, for instance: handheld showerhead, shower bench, grab bars, and nonskid bath mats etc. Also, do not let the alone in the bathroom.

- **Dressing:** getting dress is also significant challenging issue to the demented persons therefore get dress well according to the weather. Manipulating buttons, zippers, choosing the dress, arranging the clothes inn orders, providing wearing instruction, convenient clothes (elastic waists, velcro closers zippers and buttons) and comfortable to get off.

- **Eating:** dementia patients need a quiet atmosphere to have meal without other distracting environment. Serve the small portion of food snack because the person do not able to consume and digest as well. Use the cups, bowls instead of plates for eating that makes comfort for eating and encourage independent to eating. Also, get to visit the dentist regularly to maintain healthy mouth and healthy teeth, is key to eat with proper chewing.

- **Physical and mental exercise:** Assimilate the person's mental and physical daily routine for example; regular outings with neighborhood, night games, funny games, often some kinds of intellectual games, reasonable and favorite activities, senior center participation etc.

- **Incontinence:** If the incontinence is not a physical illness of person this is another burden issue of dementia patients but ensure that after consultation with the physicians. Moreover, at home, caregiver should be alert to manage bathroom on the following domains. While the person feel the bathroom do not delay for more confirmation and wait answer, be care pulling or restless at his clothes, prevent the common forthcoming accident ahead, know the location for night and outing, if you plan with the persons outing or neighborhood,

- **Sleep problems:** persons with dementia can have sleep disorder symptoms. If patients do not get sufficient rest cannot help optimal mental work. Try to manage peace evening and night time, avoid bed room with lighting, avoiding stimulating TV or filmy channels ,videos or news, maintain limitation soda, tea, coffee after lunch and evening and enough physical exercises these helps deep sleeping.

- **Hallucinations and delusions:** As the disease course the demented patients have experiences of psychological problems like; hallucitions and delusions. Thus avoid arguing matters with the persons rather than respond and try to respect feelings, expressing and providing reassurance, change the location or distracting the talking matter or walking outside,

do not open aggressive, criminal, unhealthy videos or TV, programs and safety environment, objects that would not be happen criminal activities.

- **Safety home:** A safety house can prevent the dangerous situation and less stress for caregivers, a correct senior home safety is essential in every house. Remove interior locks, install possible exist or outer gate, install secure kitchen, fix the video camera, videotape with the person surrounding or on his part of body, wear a medial identification bracelets.

- **Driving:** Be sure that your seniors' mental capacity and decreasing confidence skills of driving and activeness that requires for driving. If not avoid the driving offer, Get help from doctor's support to make invalid to him/her or motor vehicles institutions for reevaluation, take the keys of car from the old citizens and store at garage.

- **Doctor visits:** Visit the doctors as needed for further consultations regarding on medical concerns. You can choose the best day of persons, month of day or time of day, least crowded time, do not lique the doctor appointment before the doctors table, bring along drinks that he asks frequently and to take a next persons with you, if possible.

Likewise, **palliative home care** provides medical and nursing care to terminally ill patients and their families. The concern of home palliative care is to make the quality of the patient's in coming days through services such as behavioural management, pain control, symptom relief, counselling and nursing care. Palliative care is a principle that improves the quality of life of patients and their families facing the problem associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual.

The focus of home palliative care is to improve the quality of the patient's remaining days through services such as pain control, symptom relief, nursing care and counselling. Also the five main themes are; (1) person-centred care; (2) family caregivers; (3) advance care planning, pain and comfort, nutrition, medical complications and minimizing the distress of behavioral symptoms; (4) system factors, ethical dilemmas, decision making, information, and training; and(5) research priorities.

In most cases, dementia patients are caring and supervision by family the member. However since a couple of decades elderly people live on without family support. This indicates that an enormous challenge on dementia care for future on the aspects of financing and social security worldwide.

Dementia patients want their family member want their death at home. But most demented patients will die as acute patients in the ward. There may be poor management services or insufficient time to provide support as they required by the nurses or staff [56]. Dementia patients are very less referred for palliative care, palliative care medicine and assessment of

spiritual counseling before death.

Patients and their loved ones are supported in their homes by a multi-disciplinary team of doctors and nurses, and for some service providers, social workers as well. Except these above mentioned care services there are Sheltered Home for Ex-Mentally ill- Patients have no serious medical conditions however they need intensive care and physically fit with good eyesight and without any severe form of physical or intellectual disabilities and also to maintain psychiatric condition. Respite Care is short term care to recover the patient's illness in the community hospitals and nursing homes.

36.2 Institution Care

The medical concept of dementia depends on biological and mental decline process. However we do not have a gold standard diagnostic and caring methods, yet. This makes difficulties of person's life due to the brain deterioration. Dementia care a new and emerging issue in both community and instructional settings. Nurses and GPs face unique challenges in providing management and care as well as informal and family caregivers. Sociocultural factors also affect the care of older adults in Canadian society and the perception of dementia. Mainly community-based dementia care may have informal and formal caregiver services, social support and access of health facilities. The 24 hours surveillance may have a challenging while the deterioration in cognitive functioning progress, disruptive, aggressive behaviors, depression and wandering process to the caregivers.

In one non-anonymous (with 358 RNs) study of Britain, in 1988, found that RNs had experience of burnout a mean score of 2.7 in 1987 to 2.5 in 1988 at their workplace for the aspects of caring and management. In the staff member the burnout was correlated with lower empathy and less positive attitudes. The dementia imposes psychological and behavioral problems in patients. Therefore it requires a special care skill to the family members and Medical team. These services can provide by the geriatric hospitals those are able to offer care units for patients with behavioral and psychological symptoms of dementia, physical illness and to manage collaboration with multidisciplinary (physicians, neurologist, nurses, psychologists, and social workers etc.) team approach for the patients.

The NICE, has mentioned some principles of care for people with dementia such as: should not differentiate between diversity equity and language, should develop the younger peoples special necessity and multi-specialist services, people with learning disabilities those support should have access advice, should seek the valid consent, ethics and decision making from the people, the impact of dementia on their partner sexual relationship and sensitive matters, risk of vulnerable abuse, management and coordination of health and social care staff with the dementia patient and patient's family circumstance, mental history and current label of functioning abilities, financial arrangements for further continuing treatment decision, training for social care arrangements (care skills, volunteers, care responsibility, person-centered care,

medication and its side effects etc.), patient's environmental factors like access of external environment, hospital facility for patients like; primary care, specialist day care services, security, assistive technology, intermediate care and rehabilitation, mental health services etc., risk factors, preventive measure and supplementary drugs- Vitamin E, Hormone replacements therapy, anti-inflammatory drugs, statins, early identifications- MCI screening, cognitive decline, assessment of normal aging, behavior and psychological screening, assessments of memory, learning disabilities, neurological and Parkinson's disease assessments, non-Alzheimer dementias, pharmacological and no pharmacological interventions and challenges etc [56].

Likewise, according to the University of New South Wales and collaboration with the RACGP and DCRC-ABC (2011) have summarized the essential points for good dementia care in general practice. These are;

- Take a history of cognition and functional- medication, behavioral and psychological, mood, activities of daily living, progression of disease (ADL).
- Assessment of cognition impairment- Using RUDAS, MMSE, clock test and GPCOG test.
- Examination of mental and physical condition- depression, delirium cardiac failure, check nutrition, nutrition, hygiene, visual and hearing power etc.
- Take care (do not dismiss of patient's cognition stage).
- Be alert with the elderly patients' difficulties.
- Develop care plan (financial for future).
- Improve the lifestyle, daily routine, mental situation, medication for Alzheimer, management of general health.
- Diagnose the dementia related disorder like depression, psychological disorders and other forms of dementia.
- Regularity of care plan.
- Refer to the specialist services if needed/unsure diagnosis in appropriate time.
- Investigate the possible causes of memory decline- cancer, diabetics, and thyroid dysfunctions.
- Inform to the family and cargivers for further diagnosis, causes and benefits in detail.

36.3 Community Care

Community can provide (by the local authorities in the community) a help to the dementia patients to live with the well conditions such as: day care service, respite care service, advice, information, volunteer service [147]. Social support plays on the caregiver's coping ability when caring for a spouse with dementia at home (Upton & Reed 2006). Because home care for person with advanced dementia and institutional care are not affordable and are being major public health problems. So palliative care must be an appropriate policy for management of

advanced dementia care. Likewise, in the community home care nurses had the greatest access to older adults. Communities where nursing practice included home care nursing positions contributed to expanding an awareness of older adults with dementia. In completing assessments for home care services these home care RNs, were able to spend time in their clients' homes.

Most dementia research work has been focused on biomedical and psychological models than socio-cultural context. There are hidden factors in how cultural factors may intervene between the experience and response of dementia. All the complications in person's end of life can consequent of social and environmental factors that might be better or prevent symptoms with aging people [147]. Sociocultural factors is important for care elderly because most aging population wish to spend their rest of life in the society, where they grew up. Also, this dementia disease often occurs at the end of life meanwhile the other active family member should go to find his/her career. At that time the societal care is essential to them either by the family or welfare society by community. In western cultural values of independence and vitality, the changing family unit (not joint family concept) and the concept of aging in place is being burden older people in the family and community. Comparatively, the eastern society is more reliable because of culture respect toward the older than western socio-cultural in the aspects of aging care due to the joint family concept, yet. Off-course, the dementia-related issue is not only with the hospital and their staffs, it should have a public concern too. Therefore, currently the new concept has been emerged to care for the demented patients in Australia, is called baptized care.

Patients can achieve some regular care services like; regular hairdresser visits, podiatrist, physiotherapist, regular trips, church services and many other benefits. And the second one is person-centered care- that is concerned to the whole person's, personality, value and worthy of respect, unique individual's life experiences. In contrast focusing on not only the disease of brain, care that is wide concerns and its value, emotions and cognitive abilities, gender, marital status, gender, ethnicity may have significant effect on dementia patients [149].

37. Management of Dementia

The management goal of dementia in primary care are: to maintain the quality of life, maximize the daily function activities, endorse safety environment, promote the involvement of social engagement, enhance cognitive and behavior, to empower them to make own decision, plan for best possible care, further clinical management, to keep balance of antipsychotics long-term use and management of psycho-behavioural symptoms, treating pain, understating medical conditions, and risk factors of Alzheimer disease, Lewybody disease, Frontotemporal disease, Vascular disease and Parkinsons disease.

The health professionals' (doctors and nurses) roles are versatile in the hospital to manage the patients' better health, health care setting, early diagnosis and interventions, collaboration and co-ordination with the other health professionals. Also, the advance technology settings

in new health issues and their settings need to be integrated and adjusted. The community participation, foster a safe environment, promote social engagement, carers services and best communication on dementia for elderly people also can help to the dementia patients. During this couples of decades of period there are vary emerged pathological diagnosis and management innovations for dementia and its related disorders. Doctors, nurses and caregivers' are important for the long-term care placements and reduction of caregivers difficulties and patients' behavior problems in the hospitals [150]. Formal care and management will provide by the nurse, doctors and paid care workers in hospitals. However there is lack of diagnosing, managing and caring with HPs. Of southern Taiwan nurses on dementia care knowledge was found 10.8 (SD=2.0) poor. Most nurses showed confusion between dementia and delirium. In comparisons RNs with more working experience had higher dementia care knowledge rate. But both age and working experience were negatively associated with a reality-oriented approach toward care.

Patients with dementia need often especial care and management either by the caregiver from family or nursing homes. Particularly, the behavioural and psychological problems of management are burden to the caregivers. A study identified the three management strategies like; encouragement, active management and criticism were associated with three aspects. These were; family member's emotional adjustment, psychiatric disorders and willingness to institutionalize the dementia patients [151]. The active management and criticism was associated to the caregiver burden and less desire to the institution of the patients [152]. A study showed that male caregivers were more task oriented approach and oriented with the activities, while female were more concern with the nurturing and nest activities. It means that both sex is necessary for management strategies of the dementia patients. The caregiver can predict burden issues and behavior of patients and implement the interventions programmers aimed at adequate management strategies [153].

The Management and carer support strategies for persons with dementia should have focus on foundation of initial stage of management, long-term management, follow-up and referral (as necessary) [68].

- Treatment of co-morbidities
- Maintenance of function
- Dementia and disability
- Legal issues/ Decision making capacity
- Abuse and neglect
- Financial assistance
- Health promotion and Prevention
- Interventions to support the carer

- Behavioral management
- Service provision
- Impact of caring on sexual relationships
- Respite care

38. Dementia Education, Training and Intervention

Education is essential for all the health professionals that make an update with the coming new scientific innovation that has the potential to decrease the effect of stressors experienced in Long Term Care. In sufficient skill increase the workload and burnout as well [154]. Many studies have shown the lower knowledge of dementia issues with the RNs and doctors. That is the main factors to have misdiagnosed and increase the prevalence rate (discussed in the above chapter).

In southern Taiwan, a questionnaire survey was revealed that the total mean score for Nurses on dementia care knowledge was 10.8 (SD= 2.0). Most nurses showed confusion on dementia with delirium. In comparisons, RNs with more working experience had higher dementia care knowledge rate. But both age and working experience were negatively associated with a reality-oriented approach toward care.

Globally older population rate is growing; there is the fact to be an increase in the numbers of people with dementia on the hospital. The findings of Fessey, shows the knowledge, understanding and implications for care of adult nurses working with patients who present with dementia in general hospital wards was the care gaps.

The rapid increase in the number of elders who need dementia care and the critical need for skilled care providers prompted Florida legislators to enact legislation to improve the care of these residents. One component of the new legislation mandated dementia training for long-term care staff and led to the development of dementia care competencies that would guide a competency-based curriculum to meet the demand for training. The competencies, methods used for development, and information regarding how to access these newly developed resources are described in this article.

Caring for people with dementia presents a significant challenge in an acute hospital setting. Nolan, explored nurses' experiences of caring for older people with dementia people structural inadequacies of the acute hospital as a dementia care environment and the resultant challenges and complexities of the care experience. Despite this nurses considered the specific needs of people with dementia and the environmental effects of the acute setting on their ability to meet identified needs. Ballantyne, Cheek, O'Brien, Pincombe, & Zhang, Luk, Arthur & Wong focused the need for the development of competency criteria that will be effective on care providing in working with the older adults and nursing competencies of knowledge, skills, traits, motives and attitudes that are essential for effective performance in a wide range

of nursing activities.

Training is the way of helping people and health professionals to contribute for effective health services and to do things that they could not do before they were trained. Training can achieve an optimal level of quality. Skilled health professional are the main component to cater quality health services to the people.

Over the age of 65 occupy up to a quarter of hospital beds at one time in the current situation [155]. Normally dementia patients may stay longer than other patients due to the chronic procedure. In general, patients tend to stay longer in hospital than patients without dementia. Training can be helpful to meet the specific needs with the specific work so it may improve within own work setting, to face challenging and to get feedback with the concerned issue. These training might be a workshop, conference, and seminar for the health professional and community members to cope dementia.

The Royal College of Nursing reports that around a quarter of hospital beds are occupied by dementia patients [155]. At the end of life, many people with dementia (two-thirds) spend time in the hospital and die in hospital. Even though, institutionalization is not the end-point of caregiver interventions. Researchers have shown that demented patients dying during hospital admission compared to similar people without dementia [156]. Likewise, people with dementia receive less palliative care compared with similar individuals without dementia therefore HPs need to be more aware of palliative care frameworks.

In the care settings, behavioral and psychological symptoms are highly prevalent and problematic in care settings [157]. Both, hospital settings and primary care Healthcare Professionals **(HPs)** play a key role in the diagnosis of dementia. There is a need for better interventions to detect, prevent and ameliorate the impact of dementia. Dementia creates problems for HPs all over the world [158], and presents a particular challenge for primary care providers who do not adequately diagnosis it in the earlier stages of its cognitive impairment [159,160]. GPs are often in the first position to observe patients but are not effective in diagnosing dementia [161]. More than 50% cases are not diagnosed by the GPs in their practice [72]. Moreover, the global challenge of dementia is compounded by the fact that it is under diagnosed and undertreated in primary care across the underdeveloped world [162].

Dementia shows the problems for hospital staff like; a team of doctors, nurses, other staff and administration. However, not yet, any kinds of special training have been received by the HPs. For example, the Alzheimer's Society UK indicates that 71% have insufficient training in dementia management and poor awareness of the support services available for dementia [163]. Further, nurses have more opportunities to support patients and families relative to physicians. When a person with dementia is living at home, nurses are often more aware of the support networks available and the care services on offer than the patient's GP [163]. They may also have an integral role to play in maintaining channels of communication with other

professionals involved in the provision of care and treatment, such as community psychiatric nurses, social workers and voluntary agency staff. GP colleagues, nurses feel insufficiently prepared to provide dementia management service [164]. Overall, HPs consistently cite inadequate professional training and as the main influencing factors to their ability to provide an optimal service to demented patients in many researches [163]. However, as of yet, it is unknown what method of training would most beneficial for HPs. All the aforementioned is exacerbated by the fact that dementia can be present, but untreated in hospitals.

Up to now, no more review has been published to carry figure out. Perry, et al shows the improving knowledge, detection practices and management of dementia among health professionals. The present review builds upon a systematic review of educational interventions in primary care [165]. That review identified only six studies and concluded that educational interventions for primary care that require active participation to improve detection of dementia. They showed on their systematic review moderate positive results were improved with the skills of dementia and management. Five articles reported at least some effects of the interventions and small group workshop and a Decision Support System **(DSS)** increased dementia detection rates. Likewise, a 2-hour interactive seminar was risen GPs' suspicion of dementia. Adherence to dementia guidelines only improved when an educational intervention was combined with the appointment of dementia care managers. This combined intervention also improved patients' and caregivers' quality of life. The effects on knowledge and attitudes were showed minor that educational interventions alone did not seem to increase adherence to dementia guidelines.

Pathak et al finds that combined educational intervention program can improve to detect, manage and care of dementia patients in the hospital settings. Newly developed dementia knowledge guidelines for GPs/physicians can be used in improving the skills. Moreover, Registered Nurse **(RN)** and physician practice based workshops with community services, certain level of dementia care training, and decision based support system are more effective in managing and to decrease the negative attitudes of dementia care. That helps to link between care providers, community, dementia clinicians and caregivers. A comprehensive dementia care management model resulted in few differences in providers' knowledge or attitude.

A good quality of evidence with GPs and nurses intervention education and their multiple visits can increases skill of earlier dementia diagnoses, management and caring in the dementia patients. That helps to minimize cost and time for detection and management to the health professionals. So all the intervention need to address the effects of intervention however our findings suggest good quality intervention are essential to test the effectiveness and cost effectiveness to increase dementia detection rate [166]. Stephen, et al., explores in his study- one third (UK) GPs were felt lacking the appropriate epidemiological knowledge, management and caring aspects, behaviors changes, support services and little chance or offer to have demented patients in clinical practice.

The finding of provides evidence that can improve in quality of care for patients with complex, chronic condition of disease by dementia guideline–based disease management program that led to improvement in quality of care for patients with dementia and helps for systems change, including use of care managers for achieving meaningful. And also the intervention can modify for institutionalized patients and for those without a usual source of care and stable insurance [167]. Even though, after taking the intervention program with GPs suspicion of dementia detection rate was two-fold higher. Probably it may increase with age of patients and decrease with education status. However, with the GPs the intervention could not increase the number of diagnosed rate of dementia, but increased the number of suspected cases of correctly detecting demented patients [168].

The collaboration between physicians and occupational therapists may lead to appropriate referrals service to the patients to the community services [169]. Alzheimer society UK had started in partnership with BMJ Learning, GPs and RNs to raise awareness via online regarding with diagnosis practices/management procedure, carriers relevant services, information on managing medication across the UK in 2012. That study found that only 37 percent of GPs felt they had sufficient basic training on dementia. Also, 71 per cent said they wished to find out more online training, while 75 percent wanted to know more about to manage symptoms of behavioral of dementia [25].

39. Dementia Knowledge, Attitude and Practices with the HPs

Knowledge is power and is one of the imperative for adequate dementia diagnose, management, and knowledge transfer. HPs are crucial in the treatment process of patients with the variety of problems. Sufficient knowledge of dementia among health care staff is essential to the quality of care delivered to this dementia. Such a universal skills like; medicine science, diagnosis, treatment and caring aspects. Diagnosing knowledge/skills remains the vital role with the doctors to understand what is wrong with the patients inwardly. On the other hand, correct treatment, proper referral to another doctors, communication skills, patients and care knowledge are most important.

There is still unanswered questions what knowledge of dementia do help to the health professionals(nursing, medical, allied health, and support in hospitals) and, how and what dementia-specific education or training and experience can develop the dementia related knowledge these improve the diagnosing, caring, and managing rate to the patients. From now on, varieties of dementia knowledge assessment tools have been used. Among of them the oldest tools of Alzheimer's Disease Knowledge Test **(ADKT)** [170] most widely used, reliable to show good psychometric properties. Originally only used by its developers, two recently published articles have confirmed the utility of the ADKS in this context [171,172]. Assessing the level of dementia knowledge among health professionals is important to explore the fact of knowledge gaps and the effectiveness of a dementia knowledge education program for the

overall skills to diagnose and management of dementia in the hospitals [173].

Dementia presents a particular challenge for primary care providers [159], who do not adequately diagnose it in the earlier stages of its cognitive impairment [160]. GPs are often in the first position to observe patients but are not effective in diagnosing dementia [161]. Then after nurses considered the substantial roles. More than 50% of cases are not diagnosed by the GPs in their practice [72]. This 'treatment gap' is in India around 90% unidentified. Alzheimer society UK in 2013, revealed a new figure of wide variation in people are receiving diagnosis [174]. In 2021, over half a million people will be living with dementia that has gone undiagnosed. In high income countries, only 20-50% of dementia cases are recognized and documented in primary care [175].

Often patients expects from their GPs/nurses know the dementia diagnosis and management for their better health but the expectation may not always true [176]. Nursing acute care in geriatric ward is often lack of specialized education and do not have appropriate environment to care the dementia patients. Also, they do have high work load and creates burnout situations and rise mismanagement. It is already known in primary care diagnosis of dementia, early diagnosis and management of patients is often delayed with dementia and to improve patient care. An online survey, older experience GP responded more confident in diagnosing and giving advice about dementia early diagnosis was beneficial. Also it was little positive to improve quality of life although GPs had not had neither basic nor post-qualifying training in dementia. Therefore their knowledge was low [177].

However, yet, there is doubt about the value of training and useful in dementia care in U.K. nursing homes. One UK study found within 158 nurses increased person-centered attitudes was associated with better recognition of cognitive impairment independent of training and experience. The espousal of restrictive practices was also associated with better recognition, but only when analysis included nurses reporting on only one impaired resident [178].

In Australia residential aged care facilities dementia is growing due to its older age population ratio [179]. Another Australian survey (N=360) conducted to measure the Knowledge of Alzheimer's disease with the diverse group (health service district staff) through mail on the basis of demographic categories, professional groups, and professional's or personal experience with dementia. The result was find out moderate level on medically-oriented, 'risk factors' and 'course of the disease [180].

The findings [180] shows from the diverse group of health district staff, a generally moderate level (average of 79% correct) of dementia knowledge. Those medical, nursing, and allied health workers were in direct contact with the patients, showed higher levels of knowledge than administrative, housekeeping, security and transport staff in the supportive roles [180].

A cross-sectional study with 249 nurses never used the diagnostic tools for acute

delirium 57.80%. Those nurse were (80% -81%) involved in interventions of managing patients' physical environment and 62% and 71% deal with managing communication. Given theoretical training in the use of tools for nurses was confusing and significantly associated with nurses' knowledge and practices [181]. But in one study of participant's dementia care knowledge was poor 10.8 (SD=2.0) in Taiwan hospital nurse. Most nurses were confusion on dementia and delirium. However, in comparisons the RNs with more working experience had higher dementia care knowledge scores [182].

Nurses' care practices (with in 265 nurses) in internal medicine and geriatric wards of Israel hospitals showed greater attention to these patients care nurses' care practices are more connected with organizational characteristics than other factors [183]. In Korea, there is not norm to care long term in hospitals and culturally- it is considered the shameful for parents. Korean nurses' attitudes towards older people with dementia in acute care moderately positive attitudes. Two-thirds (n= 65, 65.7%) who were working in medical wards demonstrated significantly more positive attitudes than those working in surgical wards (n=34, 34.3%). However the working environment, routine and technology may influence the negative attitude towards dementia. So, education is essential to the nurses in dementia care that may reduce the potential of such conflicts [184].

A rural practitioners' (aged 31-67, mean age 50.5) experiences to recognition in diagnosis and treatment of dementia showed several to 1 months, from the nineteen primary care providers' team. Further, they showed the limitation of consultants and limitation of non-existent community support and education. That was the major impediments to diagnosis and treatment, respectively. Also, family members were absent, unaccommodating, and creator extra challenges for providers in proper making and communicating diagnoses and in supporting institutional care. Therefore, the providers believed that education services are more important caregivers, although had few excess to offer the families and carers, which constrained their ability to provide optimal care [185].

However, a study (regression analysis) showed diagnostic rates and treatment of dementia was significantly increased from 2006-2012 per previous year. There was a lower rate in between 2006-2008 compared with 2009. The skill of HPs' dementia diagnosis rate increased by an estimated 4% in 2010 and 12% in 2011 compared with 2009. With the GPs, the prescription of anti-dementia drugs has been increased dramatically since 2010. Although there was a downtick in cost in 2012, not in the prescription ratio [186].

40. General Practitioners' Knowledge, Practices and Obstacles in the Diagnosis and Management of Dementia

Dementia is a significant issue in the twenty-first century due to under detection and sub-optimal management in primary care [187]. It afflicts up to 7.5% of those above 65 years of age and presents multiple challenges for primary care. The fact that it is difficult to diagnose

in the early stages complicates the issues for general practitioners (GPs) as the primary care team has a crucial role in the diagnosis and management of dementia [156]. Typically, GPs have a pivotal role in both the diagnosis of dementia and evaluation of the severity of the problem. However, research suggests that a substantial percentage of patients with cognitive signs and symptoms are missed by GPs and thus dementia remains under-diagnosed among the older population. There is clear evidence that the early diagnosis of dementia benefits both health care professionals and carers [188]. Early diagnosis enables individuals to gain better access to information, resources, and support; demystify and destigmatize the condition; benefit from treatments; plan for the future; and prepare family, friends, and colleagues for the changes that can be expected. However, some doctors may not be confident in their diagnosis in the early-onset period [189]. Normally it takes up to one year to diagnose and, therefore, it is a frustrating process for physicians, patients, and their relatives to diagnose and manage.

Moreover, undetected dementia in younger people may be associated with work disability and an individual being (incorrectly) released from their job. To lose one's job at a young age due to dementia problems is a significant financial problem for the affected person and his/her family members [190]. There remain many barriers to identifying dementia, for example, the assessment and management of symptoms, health systems, and lack of available time for GPs, caregivers, and bereavement [95,158,191,192]. In addition, the complexity of dementia creates delays in diagnosis and is exacerbated by the following: lack of awareness that there are memory problems, difficulty distinguishing between normal age-related memory changes and dementia, fear or loss of independence, lack of skills among GPs to detect dementia due to overlapping signs and symptoms of age and psychiatric patients, and no specialist services [95,193].

Globally, dementia is a huge economic burden and is the fourth commonest cause of death among older people [194]. Moreover, dementia is still not widely recognized as a chronic condition that can impact every sector of society, and there is a commonly held belief that dementia is the disease of older people [195]. In 2010, the estimated cost of dementia worldwide was US$604 billion. In addition, in EU and North America, informal care accounts for the majority of total costs, whereas direct social care costs are negligible [131].

Nepal is a small, multi-ethnic, and multi-lingual (more than 68 languages) country. It is a low-income south- Asian country with a population of about 30 million of which over 2.2 million (8.3% of the population) are over 65 years, and this population is estimated to double in next 10 years. The demographic picture is one where the percentage of older people is growing faster than the total population. Life expectancy is 60.2 for females and 59.9 for males. According to the WHO, there are 18.82 hospital beds/100,000 populations [196], the proportion of the health budget to the GDP is 5.3%, and there are 4.9 GPs per 100,000 populations. In terms of primary care, there are 268 physician-based primary health care clinics in the country (e.g., district hospital, primary health center, and health centers) and 3179 non-physicians-based

primary health care clinics [196]. In 1996, the Nepalese mental health policy was established on a formal basis. However, less than 1% of all health expenditure is directed towards mental health, and there is little investment in training for inpatient psychiatric unit staff (<2% for nurses and 2% doctors) and no community-based psychiatric inpatient facilities are available. All psychiatric issues, such as schizophrenia, neurotic disorders, anti-psychotic, antidepressant, mood stabilizer, anxiolytic, and antiepileptic cases, are diagnosed in the outpatient rooms in hospitals or in one of the central mental hospitals a total of 0.20 beds per 100,000 population [196].

In Nepal, the total number of doctors was estimated to be 14,372 in 2013, as reported by the Nepal Medical Association. A majority of doctors are involved in the capital city of the country, and there are over 1000 specialized doctors in different sectors. In addition, there is a trend for Nepalese health care professionals to go aboard. For the government, common and communicable disease is the biggest priority, with dementia being a less-prioritized health issue in hospital settings. There is a shortage of health care infrastructure in Nepal, and there are no long-term care facilities for dementia patients. Also, there are relatively few dementia specialist doctors and no routine examination system is available. Access to care is also an issue for individuals outside urban centers. Dementia in Nepal is regularly misdiagnosed as depression, memory loss, urinary infection, vitamin deficiency, and brain tumors.

In Nepal, there is virtually no awareness of the dementia problem among the public, professionals, and policymakers. Even if it is not recognized as dementia, the illness places a heavy burden on both older people and their relatives. It is estimated that currently about 135,000 people can be classified as exhibiting dementia in Nepal [197]. This figure is likely to double every 20 years. No published data are available on the number of dementia patients in Nepal. To date, no national surveys have been conducted to understand the physicians' knowledge/attitudes, practices, and obstacles to diagnose/management and care in Nepal.

In the current situation of Nepal, nursing care via community psychiatric/mental health units is a potential practical solution. GPs should be encouraged and aided in developing local collaborative models that maximize available professional and agency resources. There is a need for educational programs and health care policies that help to increase awareness of dementia in Nepalese nursing practice, management, and care. Failure to diagnose is linked to increasing patient numbers, a general misunderstanding of dementia, reduced access to health care services, and less caregiver support. Gulland reported that around 58% of people with dementia live in low- and middle-income countries [198]. It is estimated that, by 2050, China, India, and Latin America will have the highest number of older people with dementia. The majority of developing countries do not have welfare systems and have given low priority to mental health and neurological issues, which tends to give the message that dementia is not a normal part of aging [198]. Dementia is a devastating situation in the present and creates huge financial, emotional, and physical challenges for families, nations, and society [27]. The

objective of the present research is to identify GPs' knowledge, practices, and obstacles with regard to the diagnosis and management of dementia.

41. Medical Specialists and Dementia: Clinical Practice and Difficulties in Diagnosis, Management and Care

Dementia is a progressive disease affecting various higher cortical functions that can result in physical dependency [199]. Dementia can vary from single individual to another but over longer periods it makes the person more disabled and challenges for primary care to detect for both caregivers and general practitioner and multidisciplinary team in their practice [4,9]. It is a rapidly increasing public health issue all over the world that is under recognized in primary care settings [200]. The rate of under diagnosed dementia is 65 percent by the physicians in community. Furthermore, physicians do miss opportunities for the application of available treatments, participation in research advances, care planning and the support of caregivers [6]. Therefore, dementia and related disorder, disease pose a substantial public health topic. Besides, it requires longer duration to diagnose due to its vague signs and symptoms and slowly it is starting to be a future crisis. It is calculated that the number of people with dementia will double every 20 years to 81.1 million by 2040 [8,46].

In current practice, the final decision as to when dementia is present is the responsibility of the neurologist. The neurologist should collaborate with multidisciplinary team in primary care and ease the growth of multi-disciplinary teams for appropriate diagnosis.

Iliffe et al., finds that to screen the dementia the mini-mental state examination is important test due to its relatively good reliability and validity in comparison with other scales [17]. Generally in the clinical practice the mini-mental test clock drawing test (verbal) 1-4 minute, GPCOG (verbal 4-5) minute & minute screen (verbal-7 minute) memory impairment screen (verbal minute), mini cog (verbal 2-4-5 minute) are frequently using to assess the dementia. Still, the screening skills depend on HPs' confidence, experiences and knowledge [18].

Globally the prevalence rate of dementia is increasing in tandem with increasing age and moves approximately 5-8 percent of individuals over age 65, 15-25 percent of people over age 75 percent and about 15-50 percent of people over age 85 [6]. Likewise, in the Nepalese context the proportion of older people with dementia is increasing. The WHO (2012) has calculated that approximately 135,000 people would be aching from some variety of dementia in Nepal. It stands for that dementia rate is turning but the Nepalese medical community is not ready to tackle, however. The multidisciplinary team plays a substantial part in acute hospital, outpatient clinic, residential setting, home and the wider community) in the management and care of older people by extending support to patients, households and helping to adapt treatment plans, patients and family educations (pre and post hospital), delirium of end age life [201]. Nevertheless, there are gaps between recommended current practices.

42. Nurses in Hospitals: Knowledge, Barriers and Practices of Nurses

42. 1 Background of the Study

Dementia is global problem. It is a burden- not only for household members, but also for the health professionals due to its worldwide dramatic increasing prevalence rate. Dementia creates a challenging event with respect to management and care due to its overlapping signs and symptoms and chronic mental health condition so it is a problematic topic for both caregivers and HPs in their exercise. It is a rapidly increasing as common public health issue (incurable, life-limiting illness, and death with dementia is increasingly common) all over the world that is under-recognized in primary care settings. The idea of the world-wide prevalence of dementia is 24 million and its proportion may reach 40 million by 2020 and 80 million by 2040. Approximately 58% of people with dementia will remain in low or middle income states and this ratio will rise respectively up to 63% in 2030 and 71% in 2050. In the US, 5.2 million people have dementia related disorders (especially Alzheimer dementia), and it is known as the sixth leading cause of death among older people.

Nursing care is a crucial component of the management of patients that can lead to a more serious outcome [202]. The Global cost of Alzheimer and its related dementias has been estimated at US $600 billion on the base of the non-residential care and home care that it requires [50]. If dementia specialist nurses were able to scale down even for one day of the hospital occupancy rate of older people, 11 million pounds sterling could be delivered in the UK [203]. Likewise, the world Alzheimer report indicates that if dementia care was a country, it could be the world's 18th largest economy, ranking between Turkey and Indonesia. Nursing care is a crucial part of the management of patients in terms of supporting carers and early identification. More can be done to improve care for people with dementia and their families. In the UK, the 2001 National Service Framework revealed that older people are the fundamental patient category in acute hospitals, accounting for 60% of hospital bed days [204]. Nurses can also increase family and patients' knowledge, awareness and alertness of the early identification, impact of dementia and prepare care plans for patients and their families. Nurses need multi competencies, which involves experience and evidence-based knowledge. To be competent in their consultative roles they need to know how to teach, lead, delegate, and supervise staff [205]. This wide range of knowledge is all important for dealing with complex situations. Nannies must be capable to solve practical problems and distinguish the differences between nursing and social concern. However there are some factors- underestimation, frustration, making mistakes, moral distress that impede a nurses potential to conduct research or to develop their competence in health care [206].

The Royal College of Nursing published five principles under the acronym of SPACE for supporting good dementia care: 1) Staff who are skilled and have time to care, 2) Partnership working with carers, 3) Assessment and early identification, 4) Care that is individualized, and

5) Environments that are dementia friendly for improving dementia care in hospital settings [203]. Additionally, skilled staff with enough caring time, proper palliative care, sufficient nutrition supplements, individualized care plans, rehabilitation and person centered care can improve the dementia patients' quality of life. At the end of their life patients with dementia (two thirds) spend their final years in hospital [207,208]. Sampson, Gould, Lee and Blanchard, testified that people with dementia receive less palliative care compared to similar individuals without dementia in UK hospitals. Guidelines have been enlisted to serve nursing homes to evolve policies and exercises in the end-of-life care for residents with dementia [209]. a). UK research has shown that dementia patients die during curing time in hospital due to the extended continuance of the healing process [165]. As well, it increases the disability rate among the elderly and creates problems for both primary care providers and the individual suffering from dementia [210]. Often in the later stages of dementia it creates more complications for the family members and carers as they need expert care from the specialized trained professionals. Usually the nursing staff finds varieties of practices in regards to the dementia management practices and drills with the medications in the hospital settings [211], encourage to the patients, quality of communication, degree of trusting environment between the patients their families, holding staff and physical restraints [212].

The Nepalese older population is increasing rapidly and has already reached 8.2% of the total population [213]. However, relatively litte attention is given the healthcare needs of this important group in Nepalese society. The concern of older age people with dementia is projected to increase in Nepalese society- due to the increased longevity and the disintegration of joint households. On that point is emerging evidence that the dementia problem is gradually spreading out as a future crisis and a national challenge and will soon be graded by a substantial increase in its elderly population like Ireland [197,214]. Also, the ratio of mental health professional is low (psychiatrists 0.13, 0.27 nurses and psychological providers 0.19 in 100000 populations) relative to WHO standardization [197]. This shortage trend of nurses exists in Nepal as global trend due to falling levels of job satisfactions with the geriatrics care issue and increasing degrees of burnout in the professions [215]. This course is situated in the USA. The advocates of elderly warn nurses with basic competency in geriatric care is essential to meet the especial skills that can be help on the path of looming nurse shortage [216].

In Nepal, there is virtually no awareness of dementia amongst the public, healthcare professionals and policy makers [91]. On the other hand, on that point is a substantial shortfall of educated professionals and there is little awareness of dementia as a public health matter. The illness places a great onus on both older patients and their relatives.

There is a need for educational programs and health-care policies that help to increase awareness of dementia in nursing practice, management and care thereby improving the care provided to people with dementia because nurses can help to make identification of dementia as soon as possible for person [76]. It is important to explore the barriers to the successful

management and care of patients with dementia, given that it tends to be undertreated and results in long-term hospital care.

The aim of the present work was to study the perceptual experiences of nursing staff regarding barriers to postoperative management in the hospital with dementia, their attitudes, knowledge, and management practices to surmount these roadblocks.

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