Research Literature Review Paper Outline

I. Introduction to the State of the Science Paper
   a. Purpose of the Review
      i. To examine current research available on ginkgo biloba used in the healthcare setting
      ii. To examine the benefits and hindrances of using ginkgo biloba to treat dementia
      iii. Know and understand current treatment modalities for dementia/Alzheimer’s Disease
      iv. Compare results to use of traditional pharmacological methods
      v. Understand costs of dementia to U.S.
      vi. Understand costs and availability of ginkgo biloba
      vii. Compare cost of pharmacological meds and ginkgo biloba

II. How the Search was Conducted
   a. Key words used to search
      i. Ginkgo biloba
      ii. Dementia and Alzheimer’s
      iii. Alternative treatments and dementia
      iv. Ginkgo biloba and dementia
      v. Cost of dementia
   b. Inclusion and exclusion criteria
      i. Pertaining to nursing practice
      ii. Research articles within the last 5 years
      iii. No studies done on animals

III. Results of the Literature Review
   a. Pharmacological methods
      i. Cholinesterase Inhibitors
         1. donepezil, galantamine, and rivastigmine
a. All used for mild to moderate AD with donepezil being the most popular
b. can cause N/V/D/A, and CNS effects such as insomnia, confusion, agitation and headache

ii. N-methyl-D-aspartate (NMDA) receptor antagonists
   1. memantine
      a. used for advanced stages of AD
      b. can cause diarrhea, insomnia, dizziness, headache and hallucinations

b. Benefits of using Ginkgo biloba extract
   i. anti-apoptosis
   ii. anti-inflammatory effects
   iii. neuroprotection
   iv. anxiolytic
   v. MAO-inhibitory effects
   vi. ROS scavenging
   vii. antioxidant effects
   viii. protective effects on mitochondria
   ix. increase microcirculatory blood flow

c. Dosages for Ginkgo biloba
   i. 120 mg/day – this reflects the OTC availability
   ii. 160 mg/day
   iii. 240 mg/day
      1. this showed the most improvement which may indicate that even higher doses should be studied to accurately assess dose-effectiveness

d. Ginkgo side effects – moderate concentrations seem to be well tolerated
   i. increase risk of bleeding if used with antiplatelet or anticoagulants
   ii. apathy/indifference
iii. anxiety – should be studied more, because Ginkgo b. has anxiolytic effects
iv. irritability; depression
v. sleep disturbances
vi. seizures – contains a seizure inducing chemical and should be avoided in susceptible patients
vii. dizziness, headache
viii. dry mouth
ix. transient cyanosis of nails and lips and allergic skin reactions in rare cases
e. Cost of Dementia
i. The incidence of dementia is steadily rising in developed countries
ii. Alzheimer’s dementia, alone, costs over $100 billion annually
   1. Third most expensive pathology
iii. With aging population, costs may more than double by 2040 if prevalences and per-person costs remain the same.

IV. Conclusion
a. Recommendations for further research
b. What was done well
   i. Methods for studies are well documented
   ii. Thorough documentation of all the information that the studies yielded
   iii. Unwanted effects are listed for not only Ginkgo b. but the “conventional” treatments, too
c. What needs to be improved
   i. Need to be observed longer – longest observation was for 2 years with 6 month check-ins
   ii. Need to try different/higher doses to identify the benefits and risks
   iii. Need larger sample sizes
   iv. Inclusion and exclusion criteria allowed for not needed participants, such as the ones without a diagnosis of dementia
   v. There are possibilities that there was underreporting during the studies
1. Hospitalizations or participants not sticking to dose regimen
2. Side effects associated with co-morbidity or another pharmacological medicine
   vi. Need further study on drug interactions that occur with Ginkgo b. besides antiplatelets and anticoagulants
   vii. Need further research on the cost and availability of Ginkgo biloba