Reasearch

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Research is any original and systematic investigation undertaken in order to increase knowledge and understanding and to establish facts and principles. It comprises the creation of ideas and generation of knowledge that lead to new and substantial improved insights and/or the development of new materials, devices, products and processes. It should have the potential to produce results that are sufficiently relevant to increase knowledge. Good reflective inquiry produces theories and hypotheses and benefits any intellectual attempt to analyze facts and phenomena. This search for individual facts or data requires an open-ended question for which there is no ready answer. Data are gathered through experiments, surveys or other methodologies.

In applied fields of study, research is defined as a process of creating new and unique knowledge specific to an applied field of study. It takes the form of systematic investigation into phenomena of concern to the field of study using a range of quantitative and qualitative approaches, the results of which add to, confirm, or reject what is already known. It is also a reflective investigation of the dynamic interaction between theory and practice in a profession field of study. From this investigation new understandings are developed as practices are explored in relation to peer review concepts, principles and theories. The maintenance of practice competency and the advancement of practice knowledge are critical components of the research.

Research-creation is any research activity or approach to research that forms an essential part of a creative process or artistic discipline and that directly fosters the creation of literary/artistic works. The research must address clear research questions, offer theoretical contextualization within the relevant field or field of literary/artistic enquiry, and present a well considered methodological approach. Both the research and the resulting literary/artistic works must meet peer review standards of excellence and be suitable for publication, public performance or viewing.

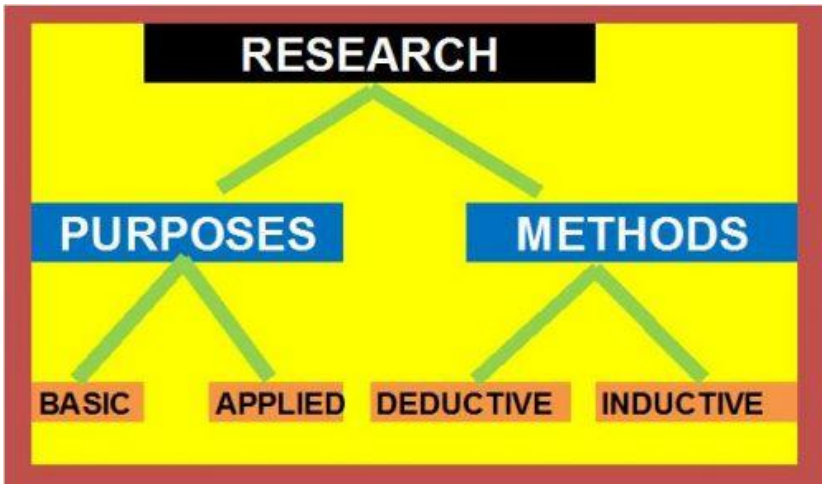
Evidence of research

Peer reviewed publications of research based or theoretical manuscripts, and peer reviewed presentation of papers are the usual outcomes of research. Evidence of research also includes the publication of a textbook that analyses

Types Of Research

Research can be classified by purpose or by method. If we categorise it by purpose, it would fall into two major categories: Basic Research and Applied Research, while in case of method, it would be deductive research and inductive research.

University Research Council



Adopted 2008-1-29 1 Nipissing University

Basic Research

The term basic research refers to study and research on pure science that is meant to increase our scientific knowledge base. This type of research is often purely theoretical with the intent of increasing our understanding of certain phenomena or behavior but does not seek to solve or treat these problems.

Applied Research

Applied research typically refers to a scientific study and the conduction of research that typically seeks to resolve a physical problem of some kind. Typically of scientific nature. Although applied research is typically refered to in terms of scientific nature, it also embodies finding solutions for every day problems. Such every day problems are inclusive of curing illnesses and developing technology and finding solutions to technical problems.

Purpose Of Research :

Purposes of Research Describe To describe groups and/or situations in terms of characteristics (variables) Explain/Predict To investigate relationships in terms of independent variables Determine cause/effect To control independent variables in order to determine their effect on dependent variables

Classification Of Research :

Classification of Research Purpose 1. Describe 2. Explain/Predict 3. Cause/Effect Interpretation 1. Describe units 2. relationships between variables 3. Cause-effect statements (control)

Descriptive Research :

Descriptive Research Survey Correlational Others developmental longitudinal cross-sectional documentary trend

Descriptive Research :

Descriptive Research Advantages can collect much data “real-world” situations necessary first step before using other types Disadvantages not enough depth findings frequently lack generalizability

Ex Post Facto Research :

Ex Post Facto Research Ex Post Facto means “after the fact”-- studying the influence of independent variables after variation has occurred No control of variables Common with educational/social science research

Conditions Necessary for Inferring Cause :

Conditions Necessary for Inferring Cause In order to say that x caused y, you must have evidence that: x and y are statistically related x preceded y in time other factors did not cause x

Experimental Studies :

Experimental Studies Control of independent variable by researcher True experiments random assignment to groups random assignment of treatment(s) to groups Quasi-experiments lack of total control

Research Design

This chapter has outlined the purpose of research design in both descriptive and explanatory research. In explanatory research the purpose is to develop and evaluate causal theories. The probabilistic nature of causation in social sciences, as opposed to deterministic causation, was discussed. Research design is not related to any particular method of collecting data or any particular type of data. Any research design can, in principle, use any type of data collection method and can use either quantitative or qualitative data. Research design refers to the structure of an enquiry: it is a logical matter rather than a logistical one. It has been argued that the central role of research design is to minimize the chance of drawing incorrect causal inferences from data. Design is a logical task undertaken to ensure that the evidence collected enables us to answer questions or to test theories as unambiguously as possible. When designing research it is essential that we identify the type of evidence required to answer the research question in a convincing way. This means that we must not simply collect evidence that is consistent with a particular theory or explanation. Research needs to be structured in such a way that the evidence also bears on alternative rival explanations and enables us to identify which of the competing explanations is most compelling empirically. It also means that we must not simply look for evidence that supports our favourite theory: we should also look for evidence that has the potential to disprove our preferred explanations.

Types of Research Design

Quantitative Research Designs

Descriptive	• Describe phenomena as they exist. Descriptive studies generally take raw data and summarize it in a useable form. • Can also be qualitative in nature if the sample size is small and data are collected from questionnaires, interviews or observations.
Experimental	• The art of planning and implementing an experiment in which the research has control over some of the conditions where the study takes place and control over some aspects of the independent variable(s) (presumed cause or variable used to predict another variable)
Quasi-experimental	• A form of experimental research. One in which the researcher cannot control at least one of the three elements of an experimental design:

- Environment
- Intervention (program or practice)
- Assignment to experimental and control groups

Qualitative Research Designs

Historical	• Collection and evaluation of data related to past events that are used to describe causes, effects and trends that may explain present or future events. Data are often archival. • Data includes interviews.
Ethnographic	• The collection of extensive narrative data over an extended period of time in natural settings to gain insights about other types of research. • Data are collected through observations at particular points of time over a sustained period. • Data include observations, records and interpretations of what is seen.
Case Studies	• An in-depth study of an individual group, institution, organization or program. • Data include interviews, field notes of observations, archival data and biographical data.

Organization of the Research Report

Most scientific research reports, irrespective of the field, parallel the method of scientific reasoning. That is: the problem is defined, a hypothesis is created, experiments are devised to test the hypothesis, experiments are conducted, and conclusions are drawn. This framework is consistent with the following organization of a research report:

Title
Abstract
Introduction
Experimental Details or Theoretical Analysis
Results
Discussion
Conclusions and Summary
References

How to Write a Research Report

Parts of a report

An objective of organizing a research paper is to allow people to read your work selectively. When I research a topic, I may be interested in just the methods, a specific result, the interpretation, or perhaps

I just want to see a summary of the paper to determine if it is relevant to my study.

For most studies, a proper research report includes the following sections, submitted in the order listed, each section to start on a new page. Some journals request a summary to be placed at the end of the discussion. Some techniques articles include an appendix with equations, formulas, calculations, etc. Some journals deviate from the format, such as by combining results and discussion, or combining everything but the title, abstract, and literature as is done in the journal *Science*. Your reports will adhere to the standard format.

- Title page
- Abstract
- Introduction
- Materials and Methods
- Results
- Discussion
- Literature Cited
- Examples

Sections Of The Report

• **Title**

– Keep it short

– Use a subtitle if necessary

– Interesting or amusing titles are better

• **Abstract**

– A 200-300 word non-technical summary of your research project.

– Questions to answer:

• What is the research problem and why is it important?

• What did you do and why?

• What did you find?

• What do your findings mean?

• **Introduction**

– Address the topic in the first sentence

– Introduce the topic by means of an example to illustrate theoretical points

– Outline your general argument and your paper

• **Literature Review**

– A discussion of findings from other researchers

– Critical apparaisal of other's theories

• **You should compare and assess other's results**.

– Provides external context for your project

– Justifies your project

- **Methodology**
  - Details method and procdures
  - Discusses the reasons for choosing your methods and procedures
- Contents of a methodology section
  - Rationale for methodological apprach
  - Hypotheses
  - Description of study area
  - Demographic details of study population
  - How the population was selected
  - Description of types of data and sources
  - Descrption of methods and procedures for obtaining data
  - Description of methods and procedures of data analysis
- **Results**
  - Details the main findings
  - Provides a summary explaination of results
  - Accept or reject hypotheses if you have any
- **Discussion**
  - Develop a logical argument about what your results mean.
  - Your results provide evidence to illustrate and support your argument.
  - Identify potential errors--What might invalidate your results? How might you improve research design?
- **Conclusion**
  - A restatement of the research problem
  - A summary statement of main findings and their significance.
  - Shortcomings of the research
  - Agenda for future research

Homoeopathic Thrombostat in Haemophilia as regards to Clotting mechanism

by Dr. (Mrs.Rita Kundu), Prof & Head of Physiology.

Being the Co- ordinator of the project "Homoeopathy in Haemophilia" my prime responsibility was to collect and supply homoeopathic drugs for the project which was mainly inventory. Later on while procuring the drug I was just interested to supply some additional information to the investigators specially as regards to the local thrombostatic agents. I have gone through various reperteries like Phatak, Knerr and Robin Murphy. I have also read available pharmacological informations and the physiological actions of various drugs. Knowledge of physiology and Biochemistry helped a lot for the selection of a thrombostat and general measure for management in bleeding.

This article tries to throw light that, how we should co-relate our basic subject while planning in deciding a drug protocol.

To begin with let us try to understand haemophilia in brief as well as to answer common question related to the issue.

Salient features of Haemophilia :

- Hereditary disorder of coagulation.
- Factor VIII or Factor IX deficiency.
- Normal level of Factors- 50 to 150 %, in hemophilic it can be <1%.
- Severity of the deficiency classified as mild, moderate, severe.
- About 25 % suffer from Factor IX deficiency (Christmas Disease) & 75% suffer from Factor VIII deficiency (Classical Hemophilia)

Clinical manifestation:

Severe - Factor level < 1%
Spontaneous joint & soft tissue bleeding
Life threatening bleeding spontaneously or trauma related to head or internal organs

Moderate – Factor level 1 – 5 % Spontaneous bleeding rare . Bleeding usually seen after minor trauma or surgery

Mild - Factor level 5 to 30 % - only occasional bleeding related to significant trauma or surgery.

Now lets understand the process of Blood clotting:

Blood Clotting is one of three mechanisms that reduce the loss of blood from broken blood vessels. The three mechanisms are:

- **Vascular Spasm** - The smooth muscle in blood vessel walls contracts immediately the blood vessel is broken. This response reduces blood loss for some time, while the other hemostatic mechanisms become active.
- **Platelet Plug Formation** - When blood platelets encounter a damaged blood vessel they form a "**platelet plug**" to help to close the gap in the broken blood vessel. (The key stages of this process are called **platelet adhesion**, **platelet release reaction,** and **platelet aggregation**)
- **Blood Clotting (Coagulation)** - As described below:
  Following damage to a blood vessel, vascular spasm occurs to reduce blood loss while other mechanisms also take effect: Blood platelets congregate at the site of damage and amass to form a platelet plug. This is the beginning of the process of the blood "breaking down" from is usual liquid form in such a way that its constituents play their own parts in processes to minimise blood loss. Blood normally remains in its liquid state while it is within the blood vessels but when it leaves them the blood may thicken and form a gel (coagulation). Blood clotting (technically "**blood coagulation**") is the process by which (liquid) blood is transformed into a solid state. This blood clotting is a complex process involving many clotting factors (incl. calcium ions, enzymes, platelets, damaged tissues) activating each other. The three stages of this process are:

1. Formation of **Prothrombinase**
   Prothrombinase can be formed in two ways, depending of which of two "systems" or "pathways" apply. These are

Intrinsic System

This is initiated by liquid blood making contact with a foreign surface, i.e. something that is not part of the body; or

Extrinsic System

This is initiated by liquid blood making contact with damaged tissue.

Both the intrinsic and the extrinsic systems involve interactions between **coagulation factors**. These coagulation factors have individual names but are often referred to by a standardised set of Roman Numerals, e.g. Factor VIII (antihaemophilic factor), Factor IX (Christmas factor).

2. **Prothrombin** converted into the enzyme **Thrombin**

Prothrombinase (formed in stage 1.) converts prothrombin, which is a plasma protein that is formed in the liver, into the enzyme **thrombin**.

3. **Fibrinogen** (soluble) converted to **Fibrin** (insoluble)

In turn, thrombin converts fibrinogen (which is also a plasma protein synthesized in the liver) into fibrin.

Fibrin is insoluble and forms the threads that bind the clot.

What happens when a person with Haemophilia bleeds?

- A person with hemophilia (PWH) does not bleed faster than any one else but he may bleed for a longer period of time.
- Contrary to the common conception, PWHs do not bleed to death from minor external wounds. Minor cuts are easily treated.
- The major problem for the persons with hemophilia or PWH's is uncontrolled internal bleeding which can begin spontaneously without any apparent cause.

Over a period of time, bleeding into joints and muscles can cause permanent damage and chronic pain

Homoeopathic management in cases of bleeding of Haemophiliac's

1) In cases of acute bleeding/ swelling **RICE** therapy is given i.e. **Rest, Ice, Compression, and elevation** along with Homoeopathic thrombostatic drug like Hamamelis Virginia Q which is used along with ice to give cold fomentation at the affected site. Here the cold application helps in Vasoconstriction of blood vessel and the Hamamelis Q helps in tightening of skin over the abrasion due to its astringent and drying property.

2) Acute drugs for swelling along with RICE therapy are orally administered considering acute totality like nature of injury, sensation, modalities, sides affected and Gibson Miller remedy relationship chart with Constitutional Similimum.

3) Genetic Similimum is administered during the non- bleeding phase. The selection depends upon his basic disposition, any dominant character of the patients, upbringing of the child and any important incidence in life, its impact on the patient and feeling developed in response to it.

Why Homoeopathic Thrombostatic drug like Hamamelis Virginia works better than Arnica Montana ?

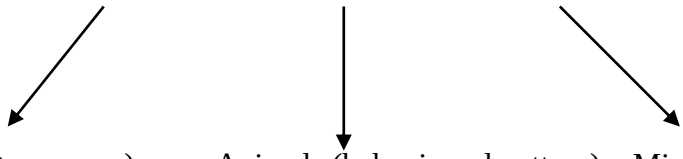
Hamamelis Virginia	Arnica Montana
• It has Anti- hemorrhagic and Anti-inflammatory property. • Active principles like Tannins(8-10%), flavonoids, volatile oil- have drying and astringent effect causing tightening up of protein in the skin and across the abrasion • This creates protective covering that increases resistance to inflammation and promotes healing of skin.	• It offers quick relief of concussion and contusion, aiding in the reabsorption of blood from injured tissues • It has active principles like arnicin, arnisterol(arnidiol), volatile oil(0.5-1%), anthoxanthine, tannin, resin, inulin & manganese. • It has property of reabsorbtion of blood from the injured tissues which breaks the clot and resumes the bleeding. Hence it is contraindicated in Haemophilia.

- Pharmacognosy and Homoeopathic Therapeutics.

Aim: - To correlate PHARMACOGNOSY AND ITS EXPRESSIONS WITHIN THE PATIENT, VIZ REMEDIAL EXPRESSIONS AND PATIENT EXPRESSIONS.

Objectives: -

1. Studying drug sources and preparations -



2. Studying homoeopathic remedies from available sources, clinical utilities and patient expressions.
3. Correlating and establishing relation of 1 and 2

Methodology And Study Material: -

Studying taxonomy according to American classification & their references on internet.

Understanding the minerals through periodic table, studying metals, salts, alkalis, acids, gases with respect to their chemical properties and homoeopathic utilities already at hand.

Understanding animal behaviours.

Drug properties and effects according to pharmacology

Homoeopathic references: provings by masters, researches by renowned physicians: Dr Sankaran, Dr Vermuelen, Dr Lienda Johnson, Dr Misha Norland, Dr Roger Morison.

Procedure: -

Retrospective analysis with 30 cured cases is carried out.

Case format: - The data & the method applied for the cases itself explains the phenomenon. The cases are presented in its pure form. That means the interactive transcriptive methodology. This implies - the

question asked by the physician & the answer received from patient is presented word to word aiming to prevent any alterations in the patient's expressions.

Hypothesis: -

Enhancing Materia Medica of lesser known or even unproved medicines

Exploring drug qualities to more scientific depths.

Result: - The co-relation between drug properties & patient's expressions is seen to be established in all these 30 cured cases.

Conclusion: - The literature study carried out seems to be verified. Further studies to understand the drug sources and their pharmacognosy can help in enhancing the Materia Medica.