ROLE OF THEORY IN PHYSICAL THERAPY  BOD P11-99-29-87

INTRODUCTION AND PURPOSE

Scientific practitioners and clinical scientists aspire to develop and apply the body of knowledge in physical therapy. Pursuit of these goals requires a sound theoretical basis for the profession, one that will facilitate the pursuit of knowledge and engender the best possible decisions and actions by physical therapists.

The purpose of this document is to articulate the manner in which theory can be optimally used by researchers to develop the body of knowledge in physical therapy, and by clinicians to ground effective clinical practice in its scientific basis. Specific ideas on how further development of theory might be achieved can be found in "Goals and Objectives for the Development of Theory."

OPERATIONAL DEFINITION OF THEORY

A theory is a formal statement concerning the relationships between and among observable phenomena with the intent of either describing a pattern amid the apparent chaos of the observations (inductive or grounded theory) or predicting the occurrence of a future event (deductive theory). Articulation of a theory includes a description of the conditions and circumstances under which the relationships are believed to hold, and is plausible, concise, and internally consistent in presenting a systematic view of the relationships being described. The evidence for a theory includes observations or data gathered in a systematic manner, and a well-formulated theory anticipates exceptions and accounts for apparently conflicting observations or data as simply as possible.

Theory generalizes beyond the specific instances included as evidence and provides a link between experience and intellectual reflection in a particular context. Theory aims at generalization and must have scope conditions which indicate the limits of generalizability. Theories employ general principles with different degrees of universality. The broadest of these universal statements may be regarded as "laws" or "axioms" that are self-evident. Theories may also be based upon "propositions" that purport to accurately capture reality but are themselves testable hypotheses. Principles are constructed from ideas about data that have been refined into concepts and operationalized for systematic categorization of phenomena.

Theory should not, however, be confused with a conceptual model or framework that may use theoretical concepts or suggest certain relationships between and among concepts, but does not attempt to provide a systematic understanding of a specified range of data. These conceptual frameworks or models, however, have value. They are useful in providing direction for theorizing by placing a focus on broader questions. Some theories attempt to unify an entire body of explanation and encompass a broad range of inquiry. Some would argue that the scope of such grand or macro theory is so wide that it attempts to characterize an entire branch of a science. Other theories, described by Merton as theories of the middle range, attempt to propose a set of assumptions regarding a limited range of data, from which specific hypotheses can be derived and tested. Evidence of a relationship between an intervention and outcome for a particular group supports a theory, and lack of confirming evidence would refute it.

THEORY AND EVIDENCE
It must be remembered that theories can never be proven. Theories can be supported by research that tests their implications; however, a theory, by definition, cannot be shown directly to be correct. Rather, it can be shown to be defensible through the collection of data. Thus, care must be taken to avoid confusing theory and evidence. A clinician can be confronted by the circumstance, for example, of plausible theory with no evidence to support it. Theory can guide one’s practice, but it would be erroneous to justify practice simply on the basis of a theory. In fact, theoretical justifications for interventions without supporting evidence, no matter how plausible, has been a major impediment to the growth of physical therapy. Theory should generate hypotheses to be tested, which may result in the generation of new theories and the discarding of old ones. Theories must not become dogma seen as “truths.”

USE OF THEORY IN RESEARCH

Theory often serves a wide range of functions in research, including the following:

- Theory provides explanations or understanding of observable phenomena and events;
- Theory yields testable propositions and predictions, including predictions of phenomena and events not yet observed;
- Theory motivates and suggests new lines of investigation including novel interventions.

When theories are formulated on the basis of experimental results (i.e. research), the formulation is inductive. Hypotheses may be derived deductively from a theory. These hypotheses may be tested in an experiment. Results may support or refute a theory.

USE OF THEORY IN PHYSICAL THERAPIST PRACTICE

When assessing the role of theory in practice, it should be remembered that a theory is simply a tool, which the practitioner should apply. An assessment must be made by the clinician as to whether a theory illuminates a problem, where it helps or where it fails to help. It should be kept in mind that a theory could be either too restrictive or too narrow. Theory cannot substitute for professional judgment.

To illustrate, when a practitioner provides intervention with a patient/client, there is an expectation of certain outcomes. Both the selection of intervention and the anticipation of outcomes are based upon relationships between the outcomes and interventions that are derived from physical therapy theory. Upon concluding intervention, a reflective clinician will review patient/client outcomes to evaluate the theory employed in establishing a plan of care. If the expected outcomes are achieved, it lends support to the theorized relationships that the intervention was based upon, and theory will have served clinical practice by helping to guide the selection of an appropriate intervention.

If the expected outcomes are not achieved, it is the clinician’s responsibility to question the accuracy of the theory, the application of the theory, and the implementation of the treatment. In other words, one should question whether (a) the theory that served as the basis of intervention was incorrect; (b) the theory may be correct, but the circumstances or conditions to which it was applied were inappropriate; or (c) the theory may be correct, the circumstances were appropriate, but the intervention given was not provided in the correct manner.

Components of theory that address mechanisms of action for intervention will also have an impact on practice in that these may assist the clinician understand why an intervention is expected to be effective. Mechanisms of action described in theory may also serve as a basis for understanding interactions between an administered intervention and other interventions, or as a basis for understanding interactions among other circumstances that may affect the patient/client.
When physical therapy theory is applied to the practice of physical therapy, it serves practice by:
- organizing observations,
- integrating knowledge with practice, and
- suggesting the need for new knowledge and alternative theories.

INTERACTIONS BETWEEN THE ROLES OF THEORY, PRACTICE, AND RESEARCH

There is a clear interactive relationship between the utilization of theory in clinical practice and its utilization in research. There are numerous theories that have emanated from the observations of astute clinical practice and from the methodical observations that define formal research processes. Likewise, there is utilization of existing theory in both clinical practice and research. In clinical practice, theory utilization is generally in the form of decisions and actions that theory suggests are appropriate. In research, experimentation is used to test propositions emanating from theory. Experimentation supports the development or expansion of theories, or to link other information into a consistent, cohesive and encompassing body of knowledge. Both clinical practice and research have an influence on theory and are influenced by theory.

Theory is the link between practice and research. Theory is most influential in circumstances where efficacy and effectiveness are known. When a relationship that was hypothesized from a theory is verified through research (i.e., an intervention is shown to produce a specific desirable outcome), it should be incorporated appropriately into clinical practice. When research shows a theorized relationship is unsupported (i.e., that an intervention is not effective under scope conditions), practice should likewise be modified in response to that finding.

When efficacy has been demonstrated, components of theory that address mechanisms of action rarely have a direct impact on clinical practice. In circumstances where efficacy has not been demonstrated, alternate mechanisms of action should be sought.

CONCLUSION

Theory serves as a keystone in the development, dissemination, and application of the body of knowledge in physical therapy. The body of knowledge is developed through practice and research, and theoretical knowledge is disseminated through peer-reviewed publication. This body of knowledge should be applied through critical thinking as an integral part of clinical practice.

REFERENCES

Relationship to Vision 2020: Evidence Based Practice
(Research Department, ext 3228)

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Explanation of Reference Numbers:
BOD P00-00-00-00 stands for Board of Directors/month/year/page/vote in the Board of Directors Minutes; the "P" indicates that it is a position (see below). For example, BOD P11-97-06-18 means that this position can be found in the November 1997 Board of Directors minutes on Page 6 and that it was Vote 18.