

# Wybór modeli i kryteriów analizy i oceny teorii pielęgniarstwa

Selection of the models and criteria for analysis and evaluation of nursing theory

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## STRESZCZENIE

### Wybór modeli i kryteriów analizy i oceny teorii pielęgniarstwa

**Wstęp.** Teorie pielęgniarstwa zawsze opisują i podkreślają pojęcia, które mają znaczenie dla pielęgniarek i pacjentów w pewnym okresie czasu i przestrzeni. Analiza i ocena teorii pielęgniarstwa odnosi się do oceny ich przydatności w praktyce, edukacji i badaniach naukowych. Ewaluacja teorii jest procesem, w którym teoria jest poddawana systematycznej recenzji.

**Materiał i metoda.** Przeprowadzono badania o charakterze ilościowym z wykorzystaniem dwóch kwestionariuszy. Ocena bazowała na skali Lickerta, w której 1 oznaczało ocenę najgorszą a 4 – najlepszą. Studenci oceniali modele również w kategoriach jakościowych. Badania przeprowadzono na grupie (1): 24 studentów z Uniwersytetu w Mariborze (Słowenia) oraz (2): na grupie 38 studentów z Uniwersytetu w Osijek (Chorwacja). Studenci reprezentowali pierwszy rok pielęgniarstwa studiów magisterskich.

**Wyniki.** Badania pokazują, że studenci obu uczelni jako najważniejsze kryteria analizy i oceny teorii pielęgniarstwa wyróżnili przejrzystość (średnia ocen 3,8 (1); 3,9 (2)); użyteczność (średnia ocen 3,8 (1); 3,9 (2)); prostotę (średnia ocen 3,7 (1); 3,9 (2)). Biorąc pod uwagę ocenę modeli i teorii różnych autorów, studenci wybrali model McKeny (1997) ze średnią ocen 3,9 (1) i 3,7 (2) jako najbardziej przydatny według kryteriów złożoności i użyteczności.

**Dyskusja.** Analiza i ocena wybranej teorii odbywa się według pewnych kryteriów, dlatego muszą one być jasne i proste. Ważne jest aby ich treść się nie powtarzała i umożliwiała proces ewaluacji. Jeśli to możliwe, pomocnym jest gdy kryteria przedstawione są w formie diagramu.

**Wnioski.** Serce i dusza rozwoju, analizy i oceny teorii tkwi w edukacji pielęgniarek.

**Słowa kluczowe:** teorie, modele, kryteria, pielęgniarstwo

## ABSTRACT

### Selection of the models and criteria for analysis and evaluation of nursing theory

**Aim.** Nursing theories always underline and describe the concepts which are in the interest of nursing and the patients in a certain period of time and space. Analysis and evaluation of nursing theories represent an evaluation of a theory according to its usefulness in practice, education and research. Theory evaluation is a process in which a theory is systematically reviewed.

**Material and methodology.** The research was supported by quantitative methodology with two structured questionnaires. Evaluation was based upon the use of Likert's scale from 1 (the worst) to 4 (the best). The students have described the model evaluation also in qualitative terms. A sample of graduate students at the University Slovenia, (1) Slovenia (n= 24) and at the University in Croatia (2), Croatia (n=38), both in the first year of the second Bologna degree in nursing was consciously designed.

**Results.** The results demonstrate that students from both Universities have singled out clarity with mean grade of 3.9, utility with mean grade of 3.8, and simplicity with mean grade 3.8, as the most important criteria for theory analysis and evaluation. Concerning the evaluation of nursing theory analysis and evaluation models of different authors the students have selected McKenna's model (1997), graded with the mean grade of 3.8, as the most useful one according to the required criteria of simplicity, complexity and utility.

**Discussion.** Analysis and evaluation of a selected theory is performed according to a set of evaluation criteria, therefore also the latter need to be presented in a clear and simple manner. It is important that the contents do not repeat themselves and that they lead the user through the process. If possible it is also valuable if the criteria are presented in the form of diagram.

**Conclusions.** The heart and soul of development, analysis and evaluation of a theory lie in the knowledge and education of nurses.

**Słowa kluczowe:** theories, models, criteria, nursing

## INTRODUCTION

Nursing theories began to develop in the 1950s [1, 2, 3, 4] and ever since then, nurses also revised the theories in order to develop them further. Nursing theories accepted uncritically and without previous analysis and testing in Slovene nursing education and in some cases in practice, created difficulties for nurses, having been developed in the USA [4, 5, 6]. As well they were accepted uncritically in Croatian nursing education. A different health care system, a different nursing education system, and nurses and patients with different knowledge bases and beliefs can make some theories unworkable. Orem's theory, for example, which incorporates the self-care concept, was typically developed for American health care, while the previous health care system in Slovenia as well in Croatia advocated almost the opposite [4]. Explain that a selected model must 'fit' with the needs of the patients and the philosophy of nurses [7].

Florence Nightingale provided the impetus for research and establishing theories and her work has deeply marked all later nursing education also in Slovenia. She emphasized the physical environment, describing the care of patients in clinical settings where infections posed problems. Nursing cannot claim to be a profession if the scientific knowledge is not developed and applied for patients' benefit. Theory helps to develop the discipline and profession of nursing [4]. Points to the benefits of theories from patients' and professionals' perspective, considering them a systematic approach to care that is patient-oriented [8]. States that '...no profession can exist for long without making explicit its theoretical bases for practice.' [9]. Thinks that without care there is no medical treatment and without theory there is no nursing, no profession and no discipline [5].

Nursing theories have become part of everyday thinking and the basis for work in nursing. They are recognized and valued by nurses in practice and students throughout the education and research for whom theories provide the basis for research. Practice based on theory or education based on the theory give clear guidance and philosophy for work. Schools in the USA must for decades now clearly present the theory which supports the implementation of the curriculum in order to be granted study program accreditation [10].

## MODELS FOR THEORY ANALYSIS AND EVALUATION

The literature contains many grand, middle-range and practice theories. They all may be useful for practice, education or research; however, every theory needs to be analysed and evaluated on the basis of a particular nursing environment before it is adapted in practice [5]. 'Adaptation' of a theory in practice needs to be done on the basis of what nurses and patients wish and need to be supported for best care, such as 'equal partner-like relationships' [5,11]. Criteria for theory analysis and evaluation are needed to see if a selected theory is 'fit' for the usefulness in practice.

Meleis [1] suggests that theory description consists of structural and functional components. In the theory analysis of Fawcett [2], which is also used Pajnkihar, the structure is that of theory scope, theory context and theory content. Suggests frameworks for theory evaluation and analysis that are helpful because 'Analysis involves objective and nonjudgmental description of theories [12].' It needs to be explicitly pointed out that the theory has to be described and analyzed in the words and terminology of the author of the theory. According to McKenna [3] the purpose of evaluating a theory is to provide an assessment of its contribution to the development of scientific knowledge. In this respect, Walker and Avant [13] add that evaluation makes clear the strengths and weaknesses of a theory and shows the need for additional development or refinement. Fawcett [2] asserts that evaluation involves judgement in how and to what extent a theory meets a set of criteria.

The analysis of the theory has presented an objective overview of the content, structure and function of the theory, therefore the facts about the theory, while the evaluation of the theory has presented the critique of the theory. Theory evaluation represents the possibilities for its contribution to the development of core skills for the profession and discipline of nursing. The evaluation represents the value and usefulness of evaluation theory [10].

To be able to examine the chosen theory or theories according to a set or model of criteria for evaluation, such criteria have to be simple, avoid too much repetitions, are clear and need to guide the user through the process, and if possible to be shown in diagram form. Evaluation of the theory means to determine the value of the theory. Its attributes have to be useful and the theory has to enable practice together with research.

Before the beginning of the research a large number of models were reviewed [14, 15, 16, 17]. However, the research only included models for description, analysis and evaluation (critique) of the theory introduced in Table 1, except for the model of Pajnkihar [10].

The model of Pajnkihar for theory description, analysis and evaluation (critique) in Table 1 is based on the sets of criteria are taken from McKenna [3], Stevens-Barnun [14] Fawcett [2], Chinn and Kramer [18], Alligood [19], Walker and Avant [13], Meleis [1] and give a comparison of these criteria among the different authors. Only Fawcett [2] has a different set of criteria for analysis and evaluation of conceptual models (grand theories) and theories (middle range theories). McKenna [3] and Parse [16] used criteria or evaluating theories that were developed from quantitative and qualitative research.

We have many theories of nursing and also can choose among many models for theory analysis and evaluation. Analysis of the models shows that every model is specific, although they have similar or common criteria.

After hearing the explanation of the topics "theories, analysis and evaluation" the students have evaluated a model and individual criteria for theory analysis and evaluation in seminar work. They have later also used the model that received the highest marks for an analysis and evaluation of a middle-range theory. The 3-steps model for theory analysis and evaluation was used: description, analysis and evaluation of the theory [10].

■ Tab. 1: Models for theory analysis and evaluation [10]

McKenna (1997)	Barnum (1998)	Fawcett (2005)	Chinn and Kramer (2008)	Alligood (2010)	Walker and Avant (2011)	Pajnkihar (2012)	Meleis (2012)
<i>Analysis and critique</i>	<i>Internal criticism</i>	<i>Theory analysis</i>	<i>Description of theory</i>	<i>Theory analysis</i>	<i>Procedures for theory analysis</i>	<i>Theory analysis</i>	<i>Theory analysis</i>
How the theory was developed	Clarity	Scope	Purpose	History of nursing theory	Origins	Scope	The theorist
How the theory is internally structured	Consistency	Context	Concepts	Significance	Meaning	Context	Paradigmatic origins
How the theory may be used	Adequacy	Content	Definitions			Content	Internal dimensions
How the theory influences knowledge development	Logic development		Relationships				
How the theory stands up to testing	Level of theory		Structure				
			Assumptions				
	<i>External criticism</i>	<i>Evaluation</i>	<i>Critical reflection</i>	<i>Evaluation</i>	<i>Evaluation</i>	<i>Evaluation</i>	<i>Theory critique</i>
	Reality convergence	Significance	Clarity	Clarity	Logical adequacy	Clarity	Relationship between structure and function
	Utility	Internal consistency	Simplicity	Simplicity	Usefulness	Simplicity / complexity	Diagram of theory
	Significance discrimination	Parsimony	Generalisability	Generality	Generalisability/transferability	Importance/significance	Circle of contagiousness
	Scope of theory	Testability	Accessibility	Empirical precision	Parsimony	Adequacy	Usefulness
	Complexity	Empirical adequacy	Importance	Derivable consequences	Testability	Testability	Personal values
		Pragmatic adequacy				Acceptance	Congruence with other professional values
							Congruence with social values
							Social significance

## Internal and external criteria

Table 1 demonstrates that the criteria for theory analysis and evaluation can be broadly divided into internal and external factors [10].

McKenna [3] refers to 'internal' and 'external' structures; Stevens-Barnun [14] to 'internal' and 'external' criticism; Meleis [1] refers to 'internal' and 'external dimensions'; and Chinn and Kramer [18], though not explicitly stating a difference, implicitly indicate the use of individual criteria. Alligood [8, 9] use the criteria for theory analysis described by Chinn and Kramer [18]. Even Tomey [20], although not actually giving any internal criteria apart from the description of the theory, represents the theory's author in terms of his or her background, education, etc., thus implicitly including him or her as a factor.

*Internal evaluative criteria* refer to philosophical and theoretical issues. This means that they are concerned with the philosophical ideas of the theorist (his or her background, education, experience, world view, reasons for developing a theory, i.e. his or her personal contribution to the development of a theory) and theoretical characteristics of a theory, such as clarity, consistency, simplicity, adequacy, etc. [10].

*External evaluative criteria* refer to societal and practical issues. This means that they are concerned with social significance, social utility, social acceptance, simplicity,

testability, etc., i.e. those aspects of evaluative criteria that are connected with cultural, political and environmental issues of a society [10].

Both internal and external criteria exert an influence on theorists. This is one reason why individual categories, though sometimes seemingly very similar, do not allow researchers to draw parallels among them; to do so would curtail or expand their original formulation, meaning and scope [10].

## MATERIAL AND METHODS

### Aim of the survey

Aim of research was to analyse and evaluate the chosen middle-range theory according to the chosen model for analysis and evaluation of nursing theories.

### Purpose of Research

The purpose is to select a model and criteria for analysis and evaluation of nursing middle-range theories.

### Research question

Which model and criteria for analysis and evaluation of nursing theories will be selected by students according to the level of difficulty, complexity and utility?

## Description of the research sample and the environment

An intended sample of postgraduate students of the first study year of second Bologna degree, of Nursing at two faculties, one in Slovenia (1), (n=24) and one in Croatia (2), (n=38) was made. Participation in the research was on a voluntary and anonymous basis.

## Research Methodology

The research is supported by quantitative research methodology with two structured questionnaires. Evaluation was made using the Likert scale going from 1 (the worst) to 4 (the best). Students also contributed qualitative answers.

## Collection and processing of statistical data

The research sample was described according to education, based on frequencies and complementary percentages. Results of model evaluation and criteria for analysis and evaluation of nursing theories were presented with mean values and standard deviations. Independent samples t test was used to compare between groups. Statistical analysis was done using the SPSS 18.0 program (SPSS Inc., Chicago, IL). P-value 0.05 was considered significant.

## RESULTS

■ Tab. 2: Evaluation of criteria for analysis and evaluation of nursing theories

	Total n=62		Slovenia n=24		Croatia n=38		t	p
	M	SD	M	SD	M	SD		
Clarity	3.9	0.4	3.8	0.5	3.9	0.3	-1.459	0.155
Simplicity	3.8	0.5	3.7	0.6	3.8	0.4	-0.950	0.349
Generality	3.3	0.7	3.4	0.8	3.2	0.6	1.050	0.300
Importance	3.6	0.6	3.3	0.7	3.7	0.6	-2.799	0.007
Logical adequacy	3.5	0.6	3.3	0.7	3.7	0.6	-2.148	0.036
Relationship between structure and function	3.2	0.7	3.0	0.8	3.3	0.6	-1.902	0.062
Utility	3.8	0.5	3.8	0.6	3.9	0.3	-0.871	0.390
Diagram of theory	2.8	0.7	2.8	0.9	2.9	0.6	-0.708	0.483
Importance	3.5	0.7	3.3	0.7	3.6	0.6	-1.826	0.073
Internal consistency	3.0	0.8	2.5	0.7	3.3	0.6	-4.574	.001
Parsimony	3.5	0.6	3.4	0.7	3.6	0.6	-1.285	0.204
Testability	3.5	0.5	3.5	0.6	3.4	0.5	0.863	0.391
Empirical precision	3.2	0.7	3.0	0.8	3.2	0.6	-1.141	0.258
Pragmatic adequacy	3.1	0.6	2.9	0.7	3.2	0.6	-2.218	0.030
Significance discrimination	3.5	0.7	3.0	0.7	3.8	0.5	-5.624	.001
Accessibility	3.5	0.6	3.4	0.6	3.6	0.6	-1.341	0.185
Empirical precision	3.4	0.6	3.1	0.7	3.6	0.5	-3.582	0.001
Derivable consequences	3.1	0.8	2.7	0.6	3.4	0.7	-3.851	.001
Circle of contagiousness	3.1	0.9	2.5	0.8	3.4	0.6	-5.023	.001
Personal values	3.5	0.8	3.2	0.9	3.6	0.6	-1.806	0.079
Congruence with other professional values	3.3	0.8	2.9	0.7	3.6	0.6	-4.122	.001
Congruence with social values	3.4	0.7	3.0	0.7	3.6	0.6	-3.766	.001
Social significance	3.4	0.6	3.0	0.7	3.7	0.5	-4.145	.001

M: mean grade, SD: standard deviation

Results in table 2 demonstrate that that students picked clarity (M 3.9), utility (M 3.8) and simplicity (M 3.8) as the most important criteria for analysis and evaluation of nursing theories. The possibility of theory testing criterion was also selected as one of the most important ones, with the mean grade of 3.5. As the least important criterion students pointed out the diagram of theory (M 2.8) followed by the criterion of internal consistency (M 3.0).

■ Tab. 3: Evaluation of models by different authors for analysis and evaluation of nursing theories

	Total n=62		Slovenia n=24		Croatia n=38		t	p
	M	SD	M	SD	M	SD		
McKenna (1997)								
Simplicity	3.3	0.6	3.5	0.5	3.2	0.6	2.047	0.045
Complexity	3.3	0.6	3.6	0.5	3.1	0.6	3.808	.001
Utility	4.0	0.1	4.0	0.2	4.0	0.0	-1.000	0.191
Total score	3.8	0.4	3.9	0.4	3.7	0.5	1.449	0.153
Chinn and Kramer (2008)								
Simplicity	3.5	0.5	3.1	0.4	3.6	0.5	-4.387	.001
Complexity	3.2	0.6	3.0	0.6	3.2	0.6	-1.030	0.307
Utility	3.4	0.8	3.1	0.9	3.6	0.6	-2.604	0.014
Total score	3.4	0.5	3.2	0.5	3.5	0.5	-2.366	0.023
Aligood (2010)								
Simplicity	3.1	0.6	3.0	0.6	3.1	0.6	-0.773	0.443
Complexity	3.2	0.6	2.9	0.4	3.3	0.7	-3.625	0.001
Utility	2.9	0.6	2.4	0.5	3.2	0.4	-6.628	.001
Total score	3.0	0.4	2.8	0.4	3.1	0.3	-3.189	0.003
Walker and Avant (2011)								
Simplicity	3.1	1.0	2.2	0.9	3.5	0.7	-6.122	.001
Complexity	3.1	0.7	2.6	0.5	3.3	0.6	-4.822	.001
Utility	2.6	0.6	2.5	0.7	2.7	0.5	-1.003	0.324
Total score	2.7	0.9	2.2	0.9	2.9	0.7	-3.136	0.003
Meleis (2012)								
Simplicity	2.9	0.8	2.6	0.9	3.2	0.6	-2.702	0.011
Complexity	3.0	0.9	2.5	0.8	3.4	0.7	-4.401	.001
Utility	3.1	0.9	2.7	1.0	3.4	0.7	-3.193	0.003
Total score	3.2	0.9	2.6	0.8	3.6	0.7	-4.939	.001

M: mean grade, SD: standard deviation

For the evaluation of different authors' models for the analysis and evaluation of nursing theories students selected McKenna's model [3] as the most useful one according to the criteria of simplicity, complexity and utility, giving it an mean total score of 3.8. As the least useful of the models the models the Walker and Avant [13] model was chosen, with the mean grade of 2.7. A higher grade in simplicity means that a model is more comprehensible. A higher grade in complexity means that a model holistically covers the process of analysis and evaluation. A higher grade in utility means that a model is preferred and easy to use in conducting analysis and evaluation of theory. Detailed results are presented in table 3.

Comparison between Slovenian and Croatian students showed that each time significant difference between groups was calculated Croatian students provided higher mean grade.



In all the cases of criteria where there was a statistically important difference among Croatian students evaluated individual criterions with a higher total score.

McKenna's model [3] was graded higher by Slovenian students, yet difference in mean total score was not significant. When evaluating models Croatian students awarded a higher average grade to four models of analysis and evaluation of nursing theories. Slovenian students on the other hand, only awarded a higher average grade to McKenna's model [3] regarding difficulty and complexity, whereas there was no statistically important difference in the overall grade.

An example of students' comments: "McKenna's model is understandable, simple criteria for analysis are organized and it provides good links". Other students have wrote: McKenna's model is understandable, simple criteria for analysis are very well arranged and allow perfect connectivity. Chinn Kramer's model is accurate, with very good explanations and mutual correlations. It is important for theory analysis and evaluation.

## DISCUSSION

Criteria clearly enter the field of practical usefulness of a theory and describe the level of abstractness of knowledge that the theory brings. McKenna and Slevin [17] underline in their criteria for analysis and evaluation of theories the significance of a good theory for practical use and how it reaches standards and quality (according to measurable criteria, measurable conditions, quality indicators). It is necessary to stress that a theory needs to be described and analysed using the words and terminology of its author.

Understanding of theory and its role, together with its analysis, evaluation and critique of it, help to develop the body of knowledge that nurses need in their everyday work [4]. The analysis and evaluation of a chosen theory or theories is conducted according to the model of criteria which leads the evaluator through the process. Students of both faculties have awarded clarity and simplicity with the highest grades.

The analysis of the criterion 'clarity' means that the selected theory for evaluation is expressed by theoretic clarity, simplicity, and consistently and congruently harmonises the context and content of the theory. Meleis [1] asserts that clarity 'denotes precision of boundaries, a communication of a sense of orderliness, vividness of meaning and consistency.' She describes evaluation of context and content of the theory where she includes semantic clarity and consistency [2]. Both Alligood [8] and Chinn and Kramer [21] include semantic clarity and semantic consistency and Walker and Avant [13] include semantic clarity and consistency to try to explain the theoretic meaning of the concept where structural clarity and consistency focus on understanding the intended connections between concepts within the theory and as the whole theory. McKenna [3] adds that 'all components within a theory should support each other and be free from contradictions.' Mentions that inconsistency can be in relation to 'terms, interpretation, principle and method' [14].

The clear link within structural components of the theory (concepts, their definitions, assumptions and proposi-

tions) focus on structural clarity and consistency (congruency between the different components) and represent functions of the theory and theoretical explanations [4].

The criterion simplicity and complexity demands that a theory is written in short affirmative sentences. Phenomena are described in a concise, coherent and comprehensible manner. Simplicity and complexity complement each other in their interrelationships. Concepts that describe a particular phenomenon within a theory have features of complexity, but simplicity of expression clarifies the phenomenon. The simpler the relationship among the concepts is explained, the better their comprehensiveness, and the more or fewer criteria will lead to utility [10].

McKenna [3] asserts that the theory should be simple and elegant and that the theoretical message should be in the simplest possible format. For Walker and Avant [13] 'parsimony refers to how simply and briefly a theory can be stated while still being complete in its explanation of the phenomenon in question.' Also, Chinn and Kramer [18] connect parsimony with theoretical simplicity and the idea of generality. Theory needs to be conceptually simple but considering a broad range of empiric experiences. Generality of the theory is based on the scope of concepts and purposes. Broad concepts contain more ideas in fewer words than narrow concepts. In this context Fawcett [12] warns that few concepts and proposition are needed to explicate, and the most simple statements are needed to clarify the phenomena of interest.

Essentially, theory must be simple and useful, able to be understood, not too abstract or have no connection to real practice, and nurses need to be able to take advantage of them in order to improve and empower their practice and positions. The same reasons apply in nursing education: students need description of knowledge that is understandable and connects every day practice and life. Last but not least, researchers need a clear picture of how to use the theory to support research, especially if the research group is interdisciplinary [10].

Almost every area and country experiences also natural catastrophes and some south eastern European countries lived through consequences of wars and political upheaval. An example of consequences of war is Croatia, where students during their graduate's courses found the middle-range theory of Chronic Sorrow very useful [22, 23]. The theory describes how individuals may respond to both on going and single-loss events and provides an alternative way of dealing with experiences of grief. Students (all employed as nurses in practice) needed support in how to deal with patients and families in their settings where most of the families lived with loss of family members and consequently grief became an everyday issue after the war in Croatia [24].

Acceptance of the theory depends on the basic principles of the theory that need to be congruent with the values and beliefs of nurses, their wishes and abilities. In the research carried out by Pajnkihar [4] and Pajnkihar and Butterworth [6], nurses recognise the essential need for theory in practice and they acknowledge that nursing theories currently applied in education offer little help in this respect. They described that the theory has to be clear, simple and useful.

## CONCLUSIONS

The heart and soul of theory development, analysis and evaluation for its usefulness is the education of nurses. An academic nursing education is a prerequisite for the unending circle of theory, research and practice. In Europe there are great differences in nursing education between countries, not only in the level of education, but also when nursing education moved into universities [10]. However, the needs and the help that patients in difficult situations, states of illnesses and with injuries require do not differ much between countries in Europe.

Practice is based on the theory that merges the science and art of nursing. Interventions within the care process should be grounded in sound scientific evidence and be carried out according to the art of nursing. Knowledge is necessary to provide safe, effective and humane care and caring environment for patients.

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