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## MIXED METHODS IN NURSING RESEARCH: APPLICATION POSSIBILITIES ACCORDING TO CRESWELL

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### ABSTRACT

**Objective:** to explain the research strategies/designs in mixed method studies proposed by Creswell, and to reflect on the applicability of the mixed approaches in scientific nursing research.

**Method:** a reflexive theoretical essay based on Creswell as a conductor for reflections on mixed research. The reflection was organized in a guiding axis that relates the basic theoretical constructs of the mixed methods and their applicability in the area of nursing.

**Results:** with the explanation of the six strategies of mixed research oriented by the author, including three in the sequential design and three in the concomitant, reflections emerged in the applicability of each of the strategies for scientific research in nursing, as well as practical examples of investigations on the use of scarce national and international literature available in the area.

**Conclusion:** mixed methods seem to emerge as the third and new paradigm of scientific research and, once the complexity of the phenomena that can be researched by nursing is recognized, mixed research tends to favor deeper interpretations of its research subject. The researchers of the area must be dedicated to the mixed research project design, and Creswell's reference/design appears to be advantageous to its apprehension.

**DESCRIPTORS:** Research design. Methods. Nursing research. Methodology. Nursing.

## MÉTODOS MISTOS NA PESQUISA EM ENFERMAGEM: POSSIBILIDADES DE APLICAÇÃO À LUZ DE CRESWELL

### RESUMO

**Objetivo:** explicar sobre os desenhos/estratégias de pesquisa em métodos mistos propostos por Creswell, e refletir sobre a aplicabilidade das abordagens mistas de investigação científica na enfermagem.

**Método:** ensaio-teórico reflexivo embasado essencialmente ao referencial de Creswell como condutor às reflexões sobre pesquisa mista. A reflexão foi organizada em um eixo condutor que relaciona os construtos teóricos básicos dos métodos mistos e sua aplicabilidade na área da enfermagem.

**Resultados:** com a explanação das seis estratégias de pesquisa mista orientadas pelo autor, entre elas três no desenho sequencial e três no concomitante, foram tecidas reflexões sobre a aplicabilidade de cada uma das estratégias para a pesquisa científica na enfermagem, além de exemplificações práticas de investigações mistas ao uso da escassa literatura nacional e internacional disponível na área.

**Conclusão:** os métodos mistos parecem emergir como o terceiro e novo paradigma da investigação científica e, uma vez reconhecida a complexidade dos fenômenos passíveis a serem pesquisados pela enfermagem, a pesquisa mista tende a favorecer interpretações mais aprofundadas sobre os seus objetos de estudo. Há necessidade de franca dedicação dos pesquisadores da área no delineamento do projeto de pesquisa mista, e o referencial de Creswell parece ser profícuo à sua apreensão.

**DESCRIPTORES:** Projetos de pesquisa. Métodos. Pesquisa em enfermagem. Metodologia. Enfermagem.

## MÉTODOS MISTOS EN LA INVESTIGACIÓN EN ENFERMERÍA: POSIBILIDADES DE APLICACIÓN A LA LUZ DE CRESWELL

### RESUMEN

**Objetivo:** explicar sobre los diseños/estrategias de investigación en métodos mixtos propuestos por Creswell, y reflexionar sobre la aplicabilidad de los enfoques mixtos de investigación científica en la enfermería.

**Método:** ensayo-teórico reflexivo basado esencialmente en el referencial de Creswell como conductor a las reflexiones sobre investigación mixta. La reflexión fue organizada en un eje conductor que relaciona los constructos teóricos básicos de los métodos mixtos y su aplicabilidad en el área de la enfermería.

**Resultados:** con la explicación de las seis estrategias de investigación mixta orientadas por el autor, entre ellas tres en el diseño secuencial y tres en el concomitante, se tejieron reflexiones sobre la aplicabilidad de cada una de las estrategias para la investigación científica en la enfermería, además de ejemplificaciones prácticas de investigaciones mixtas al uso de la escasa literatura nacional e internacional disponible en el área.

**Conclusión:** los métodos mixtos parecen emerger como el tercer y nuevo paradigma de la investigación científica y, una vez reconocida la complejidad de los fenómenos pasibles a ser investigados por la enfermería, la investigación mixta tiende a favorecer interpretaciones más profundas sobre sus objetos de estudio. La necesidad de franca dedicación de los investigadores del área en el delineamiento del proyecto de investigación mixta, y el referencial de Creswell parece ser provechoso a su aprehensión.

**DESCRIPTORES:** Proyectos de Investigación. Métodos. Investigación en enfermería. Metodología. Enfermería.

### INTRODUCTION

The construction of knowledge by man is a continuous process of legitimation and disbelief of "truths" originating from experiences, and socialization. In this respect, by the transformation of nature, humanity itself gradually transforms itself into a cyclical movement of production and consumption of new knowledge— albeit at an unconscious level.<sup>1</sup>

Notoriously, the amplitude, or rather, the infinity of knowledge to be explored by man, incurs the division of areas of knowledge, which were better defined when it was formalized by the scientific method, which strongly marked by positivism, denotes the accumulation of knowledge and the invincibility of knowledge originating from the method.<sup>1</sup> In addition, systematic human knowledge, i.e., that which is submitted to methodological procedures, tends to be produced and consumed by nuances/areas that can be consolidated as sciences.<sup>1-2</sup>

In the midst of the plurality of knowledge, nursing searches for foundations in order to establish its own knowledge, theories and concepts of science based on human care.<sup>2-3</sup> In this respect, it goes back to scientific principles; technical-assistance actions and theories that are evident to the systematization of assistance in phenomena/domains of care, which are legitimized by the specificity of knowledge and drive the discipline towards science itself.<sup>4</sup>

In Brazil, although the progress in nursing towards its consolidation as a science has been recognized especially by the leverage of the production of scientific knowledge and professional identity based on the care/assistance triad, teaching/re-

search; and administration/management, there are innumerable challenges to be faced in order for the nursing practice to solidly converge its identity as a care science.<sup>3,5</sup> Therefore, scholars in this area of knowledge ratify the importance of scientific nursing research for its social and even professional legitimation, via the dense theoretical-philosophical construct of a science.<sup>2-6</sup>

Scientific nursing research becomes a challenge when it is necessary to join the production of knowledge to its in practice; from the epistemological basis for productive support, in addition to rigorous documentation of different methodological approaches.<sup>5</sup> Thus, researchers in this area perform investigations that sometimes tend to the quantitative approach and others, to the qualitative one, by the plurality of phenomena that can be investigated in the care environment, with constructs and ideologies tending to the measurement of investigated objects or subjective understanding of phenomena.

Through the production, consumption and diffusion of knowledge, in addition to the initiatives related to the *stricto sensu* Post-Graduation Programs -responsible for the majority of the systematization and scientific dissemination of nursing knowledge in Brazil<sup>4,6</sup> - the segregation of researchers in this area with regard to methodological approaches to research is visible. In these terms, the split between convinced researchers and their fidelity to the quantitative method is observed, such as those that study the study of epidemiology and health statistics, for example; the deeply rooted qualitative researchers, which are based essentially on the human sciences in their scientific production.

It is not enough to just question the preference of research approaches - quantitative versus qualitative - among researchers, but to rethink the problem in a critical-reflective way, presenting other possibilities to scientific research in nursing. Thus, the mixed methods are configured as a third and new paradigm of research, which contemplates the quantitative and qualitative approach in a single study, which can be conducted, during data collection, together or separately, but at some point of research, will result in condensed knowledge.<sup>7</sup>

The use of mixed methods in scientific research is recent, in which the first initiatives (still confused with the term "triangulation" and not as the third and new paradigm of scientific inquiry) emerged in the 1960s and 70s. As for actual mixed methods their description dates back to the early 2000s, particularly with the publication of the *Handbook of Mixed Methods in the Social & Behavior Sciences*.<sup>7</sup>

John W. Creswell is a name that currently appears throughout the world in relation to the diffusion of mixed methods. This American researcher, based in the *Family Medicine at the University of Michigan*, where he leads the *Michigan Mixed Methods Research and Scholarship Program*, has been dedicated to the demonstration of research strategies/designs in their full mixed employability, applicable to the most diverse facets of human knowledge.<sup>7,9</sup>

Although recent in the nursing area, mixed methods have potentialities that can add greater accuracy to the interpretations/inferences of the researches about their scope, i.e., care in different perspectives.<sup>8, 10-13</sup> This is because the employability of a study based on the mixed approach incurs the search for more in-depth inferences about the research phenomenon, known as metainferences.<sup>9</sup>

Considering that the employability of mixed methods in nursing research deserves to be explored and diffused, because the possibilities of this new investigative approach seem to greatly contribute to the inferences about research problems in the area of interest to the discipline, it is questioned: according to Creswell's proposal, how can mixed methods be applied in scientific nursing research? Thus, the objective of this theoretical-reflexive essay was to explain the research designs/strategies in mixed methods proposed by Creswell and reflect on the applicability of mixed approaches in scientific nursing research.

## MIXED RESEARCH METHODS: BASIC THEORETICAL CONSTRUCTIONS

Mixed research methods can encompass (in a single research project) the classical techniques derived from positivism, represented by the measurement of research subjects, as well as common research perspectives between the social sciences and more comprehensive approaches to the phenomena researched, producing multifaceted conclusions.<sup>10</sup>

In order for the development of a research study based on mixed methods to be successful, in addition to respecting the rigor of the techniques and specific procedures of quantitative and qualitative approaches, the planning of the research project must be separated from rigorous compliance with aspects that classify the research in this new methodological approach.<sup>7,9</sup> According to Creswell, these aspects are based on the distribution of the research timing; weight attribution of the data; data combining procedure; theorizing or transforming perspectives of the study.<sup>9</sup>

Time distribution takes place when the quantitative and qualitative data is collected, and depends on whether such distribution will be carried out in phases (sequentially) or whether the data will be extracted at the same time (concurrently).<sup>9</sup> When qualitative data are collected first, the intention is to explore the research phenomenon with the participants and then the researcher expands the understanding in a second phase, the quantitative phase, with the data collection on a large number of people, usually a sample representative of the population.<sup>7,9</sup>

What has been explained above can occur in a reverse manner, i.e., in mixed research in which the quantitative data are collected first, which usually incurs the search for a deeper understanding (qualitative) of a large volume of primary numerical data. In some surveys with reduced amounts of time, the collection of information, both qualitative and quantitative is recommended.<sup>9</sup> It is also worth mentioning that time distribution is a common factor in determining another important aspect of mixed research planning, known as: weight attribution.<sup>7,9</sup>

Weight attribution refers to the weight or importance given to a given type of data in a mixed methods study.<sup>9</sup> In some studies, weight attribution may be equal, in others, some approach tends to be of quantitative or qualitative priority. In practical terms, weight attribution occurs through strategies that depend on being emphasized first, be they quantitative, qualitative or both.<sup>7,9</sup>

In the study design in sequential mixed methods, it is common to visualize the quantitative weight attribution over the qualitative (QUAN-qual), or the inverse (QUAL-quan) in sequential mixed methods study designs.<sup>9</sup> Other more specific visual notations such as arrow signs, plus signs (+) and bars (/) which can clearly represent the weight attribution and the order of a mixed study.<sup>9</sup> In a mixed methods study, the research design of the research project is fundamental to its execution, so it is believed that actually designing a research plan can be beneficial to future research performance.

On the other hand, combining the data in a study based on mixed methods refers to the investigated information-mixing procedure itself.<sup>7,9</sup> Combining means that data is actually fused at one end of the search, kept separate in the other, or, if the data are somehow combined between the two extremes.<sup>7,9</sup> In this option, the two databases should be kept separate but combined.<sup>9</sup>

According to the principle of combination, this can be done by connected data, in a two-phase (sequential) project that begins with a quantitative step and whose data analysis can be used in identification for further exploration in a qualitative second step, or the opposite.<sup>9</sup> This means that the combination of data by connection occurs when a mixed two-step study is linked from one end (data analysis) to the other (data collection).<sup>7</sup>

Regarding the data combination/mix, it is possible that integrated data can occur when the information is collected concurrently and the qualitative data can be transformed into counts, comparing them to the quantitative data through statistical analysis.<sup>9</sup> It is assumed that this is a cumbersome mixing procedure, but it indeed fuses quantitative and qualitative information. In the case of embedded data, the data, regardless of their nature, support a primary study, i.e., secondary information for the first survey, incorporated to give robustness to the interpretations of the "original" results - qualitative or quantitative.<sup>7,9</sup>

Finally, a larger theoretical perspective that guides the entire research project is referred to in relation to the perspectives of theorization or transformation. This is because, in mixed-method studies, theories are usually found in the initial sections of the study, as a guiding lens that shapes the types of questions, who participates in the research, how the data is collected, and the implications of research.

The relative absence of well-known and clear examples of research in the mixed approach may hinder the orientation of researchers in their

execution.<sup>8</sup> Nevertheless, as already mentioned, Creswell has been consecrated as a world reference in the mapping of this type of research, by guiding six main typologies/strategies/designs of mixed projects.<sup>7,9</sup> Such strategies will be explained and accompanied by references and examples for their applicability in nursing research.<sup>9</sup>

## RESEARCH STRATEGIES IN CRESWELL'S MIXED METHODS: REFLECTIONS FOR SCIENTIFIC RESEARCH IN NURSING

The definition of a research project strategy based on mixed methods depends on the following aspects: the approach that the researcher believes suits his formulation of the research problem; the design that matches the expectations of users or readers of the study, according to the research; the strategy which the researcher feels more comfortable using, the one that the researcher considers rationally more appropriate for the research, i.e., a factor related to the methodological adaptation to the research problem, and the approach which the researcher or research group has more experience.<sup>7</sup>

Scientific research strategies in mixed methods are defined in parallel with the constructs that involve this approach, i.e., those already discussed in the planning of the research project. Thus, Creswell determines the following strategies/designs for the sequential mixed studies: sequential explanatory strategy; sequential exploratory strategy; sequential transformative strategy. Regarding the concomitant studies, the same author also defines three study designs: concomitant triangulation strategy; concomitant incorporated strategy; concomitant transformative strategy.<sup>9</sup>

The sequential explanatory strategy is popular for the mixed-method research project and often attracts researchers who are inclined to do quantitative research.<sup>7</sup> This study design is characterized by the collection and analysis of quantitative data (QUAN) in one of the first stages of the research, with qualitative data collection and analysis sequencing (qual).<sup>9</sup> The greater weight is typically attributed to quantitative data and the data combination occurs when the initial numerical results leads to the collection of qualitative data, i.e., the combination / data mix usually occurs by connection.<sup>7,9</sup>

The direct nature of sequential explanatory strategy is one of its main strengths and its employment is somewhat easier because the research falls into clear and separate but combined stages.<sup>9</sup> On the other hand, its main disadvantage is the data collec-

tion, since it is necessary to carry out several visits to the research location in both phases of the study.<sup>7,9</sup>

As the strategy denotes weight attribution to the QUAN approach overlapping qual<sup>9</sup>, the statistical rigor in the definition of probabilistic sampling is evident; random data collection; the choice of tests in accordance with the normality of the sample and the study objective, in addition to other statistical procedures common to robust quantitative studies which must all be clearly respected.

For nursing research, it is mentioned that the sequential explanatory strategy can be potentially valuable to a more in-depth interpretation of commonly objective data, the example of health, quality and productivity indicators, as well as other data from the different measurement scales that nursing has built and validated in the area of direct care and its surroundings, such as teaching and care management. Regarding this, the research design in question may contribute to the de-quantification of quantitative data in a later (qualitative) phase, with a more comprehensive approach.

A national study,<sup>11</sup> based on the sequential explanatory strategy of mixed research, with the objective of analyzing the workload of the nursing team and its potential relationship with patient safety, outlines a previous quantitative approach, stating statistically significant association between the workload of the nursing staff and poorer indicator results related to patient safety and nursing service management, such as fall rates, infections related to central vascular catheters, professional turnover and absenteeism. In a later qualitative stage, i.e., in a (QUAN-qual) sequencing stage, the referred research deepened the interpretation of the findings through qualitative research techniques, demonstrating a relationship between previous numerical results.<sup>11</sup>

Another research from Belgian-based scholars,<sup>12</sup> which clearly cited the sequential explanatory design (QUAN-qual) guided by Creswell's reference, focused on important aspects related to the health of hospital nursing workers, such as burnout, job satisfaction, work environment, among others, through a primary cross-sectional study of the survey type with a large sample (n=751) of professionals, using its own measurement scales for the research subjects and self-completed questionnaire data collection techniques. Subsequently, the researchers extended the statistical knowledge through semi-structured qualitative interviews with a sample (n = 19) of nursing assistants and managers, using a construction interview model guided by the primary quantitative stage.<sup>12</sup>

The sequential exploratory strategy involves a first phase of qualitative data collection and analysis (QUAL), followed by a second phase with the same procedures on quantitative data (quan).<sup>9</sup> The greater weight is generally attributed to the first step.<sup>7,9</sup> As in the first strategy discussed, the data are combined by connecting the phases of analysis and data collection of each of the stages of the mixed study.<sup>9</sup>

The main focus of the sequential exploratory strategy is to explain a phenomenon, therefore, it has a strong point of convenience for researchers who aim to qualitatively explore a given object, but also to expand subjective findings, which gives favorable results to the community that is unfamiliar with comprehensive analysis.<sup>9</sup> In addition, the sequential exploratory strategy is especially advantageous for studies that aim to construct a data collection instrument, however, the large amount of time spent on data collection is also the main barrier in this mixed study design.<sup>7,9</sup>

Alluding to the sequential exploratory strategy (QUAL-quan) in scientific nursing research, it is agreed that it is possibly a means of facilitating new data collection instruments which can be used to measure phenomena related to care, teaching, management or research. It has unique value for nursing, since the dimensions that surround the discipline are vast, and can even include measurable objects by their own instruments and are fully adapted to the needs of the area.

In other words, the sequential explanatory strategy may help researchers extract subjective perspectives from a specific target population and, in a sequential quantitative study, to focus on the validation of an instrument that is capable of measuring the phenomenon in question. This may be interesting for Brazilian nursing, as based on what is commonly observed in national scientific production, the consumption of measurement instruments has been a factor that has been highly influenced by the incorporation of international tools, even though they have been submitted to cross-cultural validation procedures.

A recent study<sup>13</sup> developed in Iran with the objective to develop an instrument that measures factors which interfere in clinical learning among nursing students employed the sequential exploratory approach of mixed research methods. The researchers first studied the factors of interest of the phenomenon, through interviews and thematic content analysis. Afterwards, they constructed the instrument using their own validation techniques, including a factorial analysis of the questionnaire

that was applied to a sample of 227 students. At the end of the study, the researchers concluded that the research contributed to nursing in Iran and the instrument was considered valid and reliable for future application.<sup>13</sup>

The sequential transformative strategy also consists of a two-phase design, using a theoretical lens that overlaps sequencing procedures.<sup>9</sup> The purpose of this theoretical perspective, be it a conceptual structure, a specific ideology or a claim, is more important in the study orientation than the use of quantitative or qualitative approaches.<sup>7,9</sup>

In the employability of the sequential transformative strategy, there is an initial phase (QUAN or QUAL), followed by another second phase (QUAN or QUAL), which develops from the previous step, thus, the combination of data also occurs by connection, as in other sequential strategies.<sup>9</sup> The difference in this design is that its transformative character clearly guides the theoretical perspective of the researcher.<sup>7,9</sup>

The sequential transformative strategy may be more attractive to researchers who are already using a transformative framework, such as qualitative research.<sup>9</sup> Their advantages are similar to other sequential projects, however, as little has been written about the transformative approach, there is a shortage of information on how to guide the methods using this vision.<sup>7,9</sup>

By interpreting Creswell's concepts on sequential transformative strategy in mixed research method studies for the nursing area, it is postulated that this design can contribute to the consolidation of theories inherent to the discipline itself, or to those coming from different areas of knowledge such as sociology, medicine, administration, among other robust knowledge that converge to the hybridity of the science of care. That said, the transformative character of this strategy in mixed methods can favor the solidity of the theoretical construct that nursing itself is based on.

Beginning with the explanation of the concomitant designs of mixed research methods, the concomitant triangulation strategy is probably the most popular among the six mixed-model method projects.<sup>7,8</sup> In this strategy, it is recommended that weight be equally attributed to the quantitative and qualitative approaches, but in practice, it is usual for one to be prioritized.<sup>9</sup>

In the referred strategy, the researcher collects qualitative and quantitative data concomitantly, and then compares the two databases to determine if there is convergence, difference or some combina-

tion between them.<sup>7,9</sup> This comparison of data can be understood as confirmation, disconfirmation, cross-validation or corroboration.<sup>9</sup>

The concomitant triangulation design is advantageous for describing substantial results and also facilitating the collection of QUAN and QUAL data that takes place at the time.<sup>7</sup> Nevertheless, it requires the researcher to have expertise and ample ability in order to handle the data, which will be used in different ways, but grouped and also because the researcher can be confused with the discrepancies that may emerge among the analyzed information.<sup>9</sup>

A recent example of research from Brazilian nursing based on the mixed approach in concomitant triangulation was the study of the governance of the nursing practice in the hospital environment.<sup>14</sup> In this investigation, the collection of quantitative and qualitative data was concomitantly extracted by a validated questionnaire, by means of grounded theory. The authors demonstrated the procedures for collection (concomitant), data analysis and the fusion of both, concluding, based on the final construct of the analyzed data, that care management is the core of the nurses autonomy in a hospital setting; and that this professional uses the development of skills, experience and good professional examples to overcome the daily adversities in their working environment.<sup>14</sup>

Another study of Dutch origin, reports that concomitant triangulation would be applied to conduct data collection with equal weight attribution.<sup>15</sup> In this research under construction, whose subject focuses on advanced nursing practices with the aim to advance authority over procedures traditionally recognized as being performed by doctors, the authors contribute with a very interesting illustrative delineation about triangulation and report using the data added to them, concomitantly collected with several techniques to infer their conclusions.<sup>15</sup>

Concerning the concomitant incorporated strategy, as opposed to the concomitant triangulation design, this incorporation approach has a main characteristic (QUAN or QUAL or quan) that guides the project and a secondary database that plays a supporting role in the procedures.<sup>7,9</sup> Thus, receiving less priority/weight, the secondary method is incorporated or covered by the predominant method.<sup>9</sup>

For Creswell, the incorporation of data into the concomitant embedded strategy suggests that the secondary method deals with a different primary question or seeks information at a different level of analysis.<sup>9</sup> Thus, the combination of the two

methods often means integrating the information and comparing a data source to the other, which usually occurs in the discussion of the study.<sup>7,9</sup> It is believed that this procedure requires that the group of researchers in mixed method studies are experienced, and, perhaps, such experience in the use of previous sequential strategies can facilitate the apprehension of this design.

Corroborating with the concomitant studies, there is an advantage of collecting the data simultaneously in the incorporated strategy. Also, when using the incorporation, the researcher can obtain perspectives of analysis of different types of data or levels of research.<sup>7,9</sup> In spite of this, there is difficulty in the sense that the data is worked in such a way as they are integrated into the analysis phase of the research and; in the case of discrepancies between the databases, these can also be resolved.<sup>9</sup>

Regarding the applicability of the concomitant incorporated strategy, it is postulated that this could be advantageous to the field of nursing in large studies, such as multicentric ones, since the incorporation of data suggests the coupling of a certain type of data on a more robust or significant database.

It is not enough to define quantitative or qualitative approaches here, but perhaps this study strategy can be facilitated by the incorporation of qualitative and quantitative data. In addition, it is believed that the concomitant incorporated strategy is one that deserves greater caution in the research planning because unless the common thread is well harmonized, the incorporated data may diverge from the basic research, which would be a loss of time and/or would result in the invalidation of results that were previously collected.

In concomitant transformative strategy, as in the sequential transformative model, the design is guided by the use of a specific theoretical contribution.<sup>9</sup> However, in this modality, quantitative and qualitative data are collected concomitantly.<sup>7,9</sup> The theory used as a guide for this mixed research is reflected in the purpose of the study or in the research questions, therefore, the theoretical structure is the driving force behind all the methodological choices.<sup>9</sup>

The concomitant transformative model can take on the characteristics of a triangulation or a built-in approach, since the data collection takes place simultaneously. What differentiates this design from others is the theoretical guide, as well as the combination of data, which occurs through fusion or incorporation.<sup>7,9</sup> As the concomitant transformative strategy shares features with the other

designs of this order, its strengths and weaknesses are similar. However, the additional advantage of this approach is its transformative structure, i.e., the theorizing impact of the findings of the mixed research.<sup>9</sup>

In nursing research the concomitant transformative strategy possibly has similar applicability to the parallel design in the sequential mode. This means that this strategy can be valuable in consolidating theories of affection in nursing. However, unlike the sequential model, the concomitant transformative strategy may be interesting in the sense that, considering that studies of this nature imply the deep immersion of the researcher into a dense theoretical apparatus in order to give light to the findings, in addition to all the natural rigor of a research (perhaps duplicated in this case), the characteristic of collecting qualitative and quantitative data from different forms may be a factor that contributes to the viability of the investigations.

## CONCLUSION

Mixed methods seem to emerge as the third and new paradigm in scientific research, leveraging the possibility of obtaining more accurate or at least more complete interpretations of research phenomena. For nursing - which draws on the complexity of human care - mixed methods can be effective for the problems of scientific research, since the research objects of the discipline naturally carry the density of information to be explored in themselves, which can be investigated in greater depth through this innovative methodological approach.

Through Creswell's concept, a series of explanations and reflections that guide the principles and designs of mixed method research projects were made, relating them to their possibilities in nursing research. Although this study does not represent a systematic review, but a theoretical-reflexive essay, it is considered that the Brazilian nursing initiatives in mixed research are still apparently incipient. Therefore, it is believed that the content presented contributes to the dissemination of mixed methods in a clear and even didactic way for researchers in the area who are interested in the challenging endeavor of mixed research.

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