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What happened to the clinical approach to case study in psychological research? A clinical psychological analysis of scientific articles in high impact-factor journals

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Abstract

The paper aims at investigating the incidence of case studies in high impact factor psychological journals and at creating a paradigm model which may conceptualize and explain the different uses and purposes of case study as research method. Overall, 6,393 articles from 16 psychological journals published in the 5-year period 2007-2011 were examined. Results show the low incidence of case studies (n=16) equal to about 0.25% out of the total. In addition, grounded theory allows the detection of two main thematic area: neuroscience and psychosocial risk. In neuroscientific research, case study seems mainly to serve as critical case in testing well-formulated theories. Instead, with regard to psychosocial risk, case study is regarded as useful for psychological intervention

in both exceptional events management and best practices-related innovation in atypical fields.

Key words: case study, impact factor, psychological research, research method

Introduction

Case studies in psychology reconstruct a major episode in people's lives by identifying a particular set of problematic or otherwise interesting events and relationships that naturally occurred in the real world. They can be studied or understood only in their context as they merge with their environment, so it is difficult to draw precise boundaries. The analysis or interpretation of case studies is most often intended to lead to a better understanding of the area of inquiry; that is, deriving or testing theories. Depending on the branch of psychology that uses case study, not only individual processes and possible solutions to their problems maybe the focus but also processes within groups, institutions, or communities. Psychological case studies can have many forms, such as narrative accounts, detailed technical or juridical reports, documentary films, or sets of observations. Psychological case studies focus on individuals, thought different interpretations are possible that include context or time dimensions (Mills, Durepos, & Wiebe, 2010). They frequently share characteristics with case studies in other disciplines within social sciences whose focal points are description and analysis of contextual factors, social structures, and processes in order to reach a more global understanding of events (Langher, Ricci, Propersi, Glumbic, & Caputo, 2016). Psychological case studies are of relatively recent origin. They have their sources in psychiatry and social work and have been used as a research method since the early part of 20th century. These early psychological case studies were modeled on medical methods; that is, they often contained short clinical case vignettes or brief reports on personality description and social relationships. After World War II, experimental and psychometric approaches became dominant and displaced case study research to clinical psychology and personality studies. Due to this development, the scientific character of case studies has never been explored thoroughly, and case studies are often neglected in textbooks except for some contributions on the specialized single-case experimental method. Therefore, there is no general agreement on the organization, content, or employment of case studies in psychology. Often they are conducted for practical purposes and their theoretical aspects are neglected (Mills, Durepos, & Wiebe, 2010).

Aim of the study

First aimed at evaluating scientific journals, the impact factor (IF) is now increasingly used to evaluate research and orient publishing strategies of researchers and has, in this respect, become a measure of the quality or reputation of a journal (Archambault & Larivière, 2009). In this regard, it was demonstrated that journals with impact factor mainly prefer certain types of article (Walters, 2006). In addition, a journal's IF is likely to be reduced by its publication of articles that do not conform to current customs, fads, and fashions (Thorne, 1977).

The present study aims at investigating the incidence of case studies in high impact factor scholarly psychological publications. In addition, it aims at creating a paradigm model which may conceptualize and explain the different uses and purposes of case study as research method, by exploring the main themes dealt with by scientific psychological literature.

Method

Selection of journals and articles

For the research it was decided to consult the 16 psychological journals with the highest impact factor (>5) out of the total of 528 indexed journals as reported in the electronic database of 2010 Journal Citation Reports (JCR) Social Sciences Edition¹. At first, articles published in the 5-year period 2007-2011 were collected ($N=6,393$); then, after a screening based on a careful reading of abstracts, 16 case studies were selected from the whole sample.

Data analysis

In order to explore the contents of the selected case study articles, text analysis was used as a relevant method for qualitative inquiry in clinical (Caputo, 2014a, 2015a), social (Caputo, Giacchetta, & Langher, 2016) and educational (Caputo & Rastelli, 2014) fields, which may provide useful insights also in the examination of scholarly psychological publications (Caputo, 2014b, 2015b). Specifically, grounded theory (Glaser & Strauss, 1967) was adopted as a constant comparative methodology that combines data analysis with data collection. Grounded theory was designed to build new theory that is faithful to the area under study and that illuminates a particular phenomenon and is based on three types of coding procedures: open, axial, and selective (Strauss & Corbin, 1998). Open coding aims at categorizing individual concepts which are then gathered together to form more powerful and abstract categories. Axial coding is the process of relating

categories to their subcategories to create code families. This is done on the basis of a coding paradigm that involves conditions, context, action/interactional strategies and consequences. Then, selective coding entails the process of selecting the core categories, systematically relating them to other categories, validating those relationships, and filling in categories that need further refinement and development. In the paradigm model the incidents or events that lead to the occurrence of the phenomenon are referred as the causal conditions. Phenomena represent the central ideas or events. Context refers a specific set of conditions that intersect dimensionally at this time and place to create a set of circumstances or problems to which persons respond through actions/interactions. Intervening conditions refer to a broad host of factors that can bear down upon the phenomena. They are those conditions that mitigate or otherwise impact causal conditions on phenomena. Action/interaction strategies are the ways in which the phenomenon is managed, handled, carried out and responded to, in a certain context and under specific conditions. Finally, consequences refer to the outcome of the phenomena as they are engaged through action and interaction.

Results

Only 16 journal articles were classified as case studies, equal to about 0.25% out of 6,393 retrieved items. They were exclusively published in three journals, respectively Journal of Cognitive Neuroscience (n=8), American Psychologist (n=7) and Journal of Abnormal Psychology (n=1), thus highlighting the very low incidence of this research method in high-IF scientific literature (about 19% out of the total of examined journals). Table 1 shows a brief description of examined case studies.

Case study	Author/s (Publication year)	Journal	Article title	Brief content description
CS 1	Gheytanchi, Joseph, Gierlach, Kimpara, Housley, Franco , & Beutler (2007)	American Psychologist	The dirty dozen: Twelve failures of the Hurricane Katrina response and how psychology can help.	Proposal of an intervention model to encompass disaster planning and mitigation efforts from a broader public health perspective, based on the analysis of the United States' inadequate responses to a massive disaster as evidenced by Hurricane Katrina.
CS 2	Kelman (2007)	American Psychologist	The Israeli-Palestinian peace process and its vicissitudes: Insights from attitude theory.	Proposal of an intervention model for conflict resolution and possible negotiations towards a two-state compromise that meets the basic needs and validates both national identities, from the analysis of the vicissitudes of the Israeli-Palestinian peace process since 1967.
CS 3	Malcolm & Barton (2007)	Journal of Cognitive Neuroscience	Sequence Agnosia in Bálint's Syndrome: Defects in Visuotemporal Processing after Bilateral Parietal Damage.	Study on the effects of bilateral parietal lesions on the temporal organization of perception, from the case of a patient with Balint's syndrome whose performance is evaluated on two oddity paradigms in which she has to indicate which of three objects was different in color, shape, or structure.
CS 4	Smilek, Malcolmson, Carriere, Eller, Kwan, & Reynolds (2007)	Journal of Cognitive Neuroscience	When 3 is a Jerk and E is a King: Personifying Inanimate Objects in Synesthesia.	Proposal of a neural model of normal personification and the unusual personifications that accompany object-personality synesthesia, from the case of an individual for whom inanimate objects are experienced as having rich and detailed personalities.

CS 5	Laeng, Waterloo, Johnsen, Bakke, Torstein, Låg, Simonsen, & Høgsæt (2007)	Journal of Cognitive Neuroscience	The Eyes Remember It: Oculography and Pupilometry during Recollection in Three Amnesic Patients.	Study on the role of neural substrates in the spared (right) hemisphere in the eye fixations' re-enactment and implicit visual pattern recognition, from a case of three amnesic patients viewing novel visual stimuli compared to stimuli that they had previously seen.
CS 6	Smith, Abou-Khalil, & Zald (2008)	Journal of Abnormal Psychology	Posttraumatic stress disorder in a patient with no left amygdala.	Study on the role of the amygdala in the development and expression of posttraumatic stress disorder (PTSD), from the case of a unique patient who developed PTSD following a traffic accident that occurred 2 years after she had undergone removal of her left amygdala to treat pharmacologically intractable epilepsy.
CS 7	Coslett & Lie (2008)	Journal of Cognitive Neuroscience	Simultanagnosia: When a Rose Is Not Red.	Study on the role of the posterior parietal lobe for processing information regarding object identity and spatial location, from the case of a simultanagnosic patient with bilateral posterior parietal infarcts, relatively preserved object processing and normal preattentive processing.
CS 8	Morrone, Guzzetta, Tinelli, Tosetti, Del Viva, Montanaro, & Cioni (2008)	Journal of Cognitive Neuroscience	Inversion of Perceived Direction of Motion Caused by Spatial Undersampling in Two Children with Periventricular Leukomalacia.	Proposal of an explanation model for a reduced spatial sampling of the motion stimuli, from the analysis of two young diplegic patients with cystic periventricular leukomalacia who systematically, and with high sensitivity, perceive translational motion of a random-dot display in the opposite direction.
CS 9	Voytek, Secundo, Bidet-Caulet, Scabini, Stiver, Gean, Manley, & Knight (2010)	Journal of Cognitive Neuroscience	Hemicraniectomy: A New Model for Human Electrophysiology with High Spatio-temporal Resolution.	Proposal of a hemicraniectomy model for studying neural dynamics in humans with enhanced spatial and temporal resolution, from the case of a unique patient cohort that has undergone decompressive hemicraniectomy.

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CS 10	Abeles (2010)	American Psychologist	In the public interest: Intellectual disability, the Supreme Court, and the death penalty.	Study on the reliability of attorneys' assistance to someone convicted of murder who is intellectually disabled, from a case where no mitigating evidence is presented to the jury concerning the intellectual disability of the client during the death penalty phase of the trial.
CS 11	Phelps (2010)	American Psychologist	Transforming the culture of the academy through "Preparing Future Faculty" programs.	Proposal of academic career development programs aimed at sustaining aspiring international and minority faculty members, from the experience of the University of Georgia Preparing Future Faculty in Psychology program with its emphasis on students of color.
CS 12	Laganaro, Morand, Michel, Spinelli, & Schnider (2010)	Journal of Cognitive Neuroscience	ERP Correlates of Word Production before and after Stroke in an Aphasic Patient.	Study on the role of left temporal cortex in lexical–phonological processing during word production, from the case of an aphasic patient with severe anomia who has incidentally performed a picture naming task in an ERP study as a control subject one year before suffering a left hemisphere stroke.
CS 13	Bolognini, Làdavas, & Farnè (2010)	Journal of Cognitive Neuroscience	Spatial Perspective and Coordinate Systems in Autoscopy: A Case Report of a "Fantome de Profil" in Occipital Brain Damage.	Study on the role of proprioceptive signals in modulating the illusory visual reduplication of one's own body, from the third long-lasting case of autoscopy in a patient with right occipital lesion who sees her head and upper trunk laterally in side view (<i>fantôme de profil</i>).

CS 14	Casoy Jr (2011)	American Psychologist	Comprehensive soldier fitness: A vision for psychological resilience in the U.S. Army.	Proposal of a preventive program to help the Army community members to face life's adversities, from the analysis of the Army's Comprehensive Soldier Fitness (CSF) training program aimed at enhancing psychological resilience among soldiers, family members, and Department of the Army civilians.
CS 15	Cornum, Matthews & Seligman (2011)	American Psychologist	Comprehensive Soldier Fitness: Building resilience in a challenging institutional context.	Proposal of a positive psychology-based intervention model to implement in very large institutions, from the analysis of the Comprehensive Soldier Fitness (CSF) program designed to increase psychological strength and positive performance and to reduce the incidence of maladaptive responses of the entire U.S. Army.
CS 16	Seligman & McBride (2011)	American Psychologist	Master resilience training in the U.S. Army.	Proposal of an intervention model to enhance well-being and performance of the entire Army force, from the analysis of the U.S. Army Master Resilience Trainer (MRT) course, which provides sergeants with face-to-face training on resilience skills.

Accordingly with grounded theory, open coding allowed the detection of 158 codes which were then matched and integrated into a single codebook composed of 36 themes by axial coding (Table 2).

Table 2. Codebook of Axial Coding

<i>Axial Coding</i>	<i>Examples of Open Coding</i>
Army	army community - success in warfare
Assessment	neuropsychological assessment - performance test
Attitude	approach-avoidance dynamics - attitude change
Auditory process	auditory task - processing of temporal sequences

Brain area	coordinate systems - hippocampal regions
Brain damage	bilateral posterior parietal infarcts - brain damage
Brain function	brain activity - synesthesia
Brain measure	electroencephalography - event-related potential
Brain surgery	amygdala removal - hemicraniectomy
Cognitive function	intellectual disability - normal cognition
Cognitive process	memory - processing objects
Communication	clashing narratives - communication strategies
Culture	cultural challenges - cultural differences
Diagnosis	diagnosis - diagnostic and statistical manual of mental disorders
Education	academic careers - doctoral students
Emotion	emotional associations - fear conditioning
Institutions	authority relationships - leadership's responsibility
Justice	court's decision - social equality
Motor process	expansion motion - motor task
Neurological syndrome	amnesic patients - aphasia
Patient	patient's report - patient's post trauma needs
Perceptual process	inanimate objects's personification - spatial localization
Politics	israeli-palestinian peace - political issues
Program	disaster planning - recruitment program
Promotion/prevention	comprehensive fitness - psychological resilience
Psychopathology	hallucinations - post-traumatic stress disorder
Public health	health care system - ineffective assistance
Research	action research - experiments
Risk	counterterrorism - natural disasters

Society	public interest - national identity
Speech process	lexical-phonological processing - word production
Training	master trainer - mentoring

In the final stage of the analysis, selective coding highlighted two core categories grasping the main phenomena embedded in the data: neuroscience and psychosocial risk. A substantive theory of the paradigm model, including causal conditions, context, intervening conditions, action/interaction strategies and consequences is developed and presented in Figure 1.

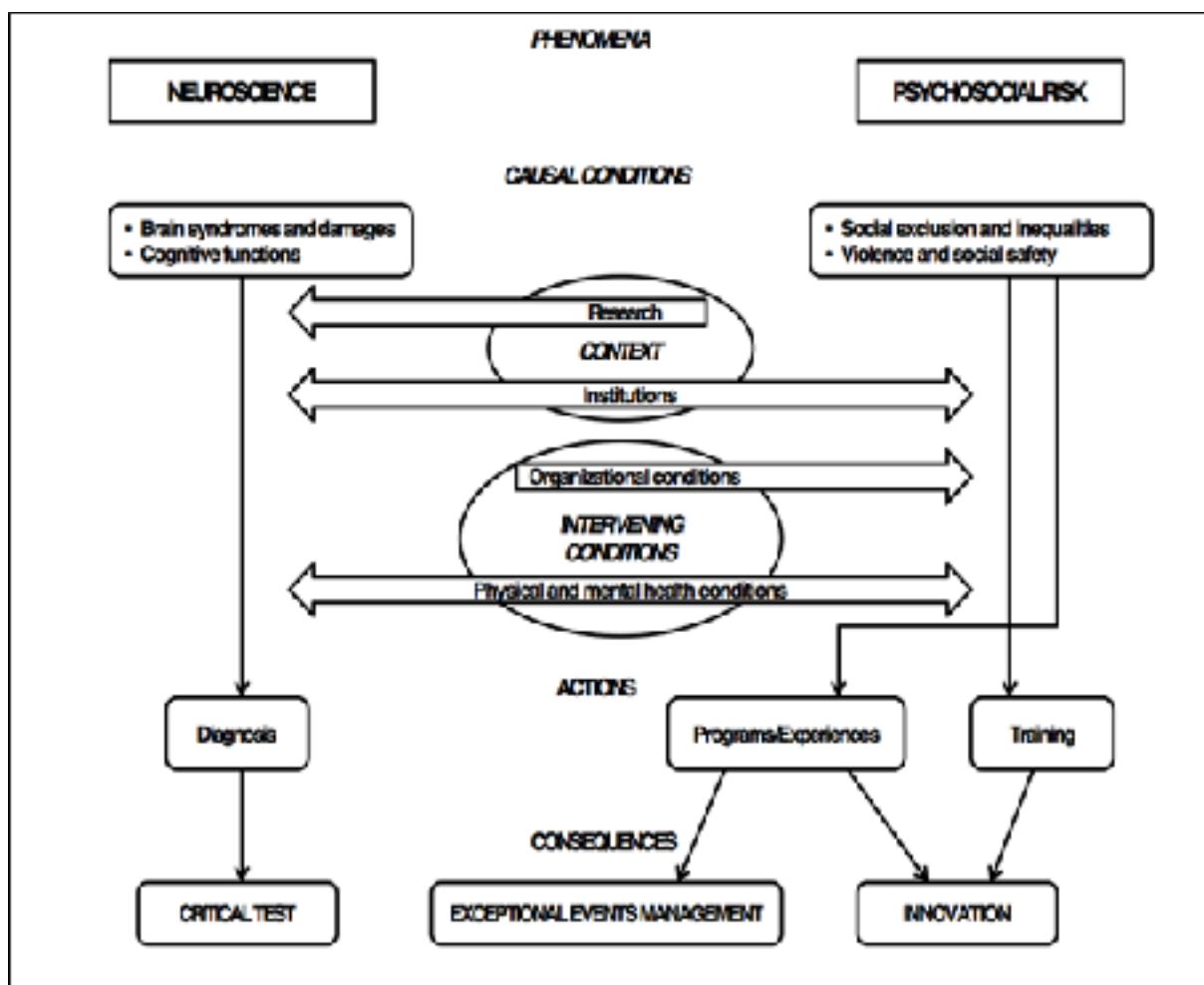


Figure 1. The paradigm model applied to case study

Neuroscience

The first subject emerging from the analysis of case studies refers to neuroscientific issues concerning cerebral anatomy, biology, physiology and broadly the relationship between nervous system and cognitive functions. Causal conditions which lead to this phenomenon rely on the relevance that brain damages or syndromes and cognitive deficits have in scientific research, such as sequence agnosia in Bálint's syndrome (CS 3) and simultanagnosia in bilateral posterior parietal infarcts (CS 7). Indeed, the reference contexts where neuroscientific topics emerge almost exclusively deal with research field (mainly focused on functional consequences of brain injuries or disorders) as in the case report of a “fantome de profil” in occipital brain damage (CS 13). Only in one case, there is a reference to institutional setting, specifically concerning the Supreme Court and death penalty for a man with intellectual disability (CS 10). Intervening conditions refer to both physical (i.e. multiple or rare clinical disorders) and mental health conditions (i.e. post-traumatic stress disorder) which illustrate exceptional cases where the course of brain damages and cognitive malfunctions can be better examined, such as the case of post-traumatic stress disorder in a patient with no left amygdale (CS 6). Action strategies exclusively rely on neuropsychological diagnosis aimed at relating cognitive functions to brain areas. In this paradigm model the main consequence - in terms of outcome pursued by case study method - can be conceptualized as critical test which supports and better defines the explanatory extent of a given theoretical construct or model in neuroscientific field by using strategic or critical cases.

Psychosocial risk

The second phenomenon emerging from the analysis of case studies refers to psychosocial risk, in terms of emergencies or situations of public interest. Causal conditions mainly deal with social exclusion and inequalities (e.g., academic education accessibility in CS 11) or community safety (e.g., natural disasters in CS 1 or international conflicts in CS 2). The reference context pertains to institutions, in particular education (CS 11), army (CS 14, CS 15, CS 16) and government (CS 2). Intervening conditions refer to mental health (i.e. stress, resilience) or organizational factors which pertain to systems of social coexistence. Consistently, action strategies are proposed such as: experiences or programs which contribute

to set up guidelines for handling exceptional events affecting the whole community (as the CS 1 on hurricane Katrina) and training interventions to develop and improve coping skills for preventing failures (as shown in CS 14 and CS 15 dealing with “Comprehensive Soldier Fitness”). The main consequences highlighted in this paradigm model refer to exceptional events management in order to favor effective coordination among beneficiaries and stakeholders in critical or urgent situations

(e.g., natural disasters in CS 1), as well as innovation with regard to best practices in psychological intervention in atypical fields (e.g., socio-politics in CS 2).

Discussion

In the reviewed scientific literature, case study represents one of the less favored research approaches. Although case study can be traditionally considered as a consolidate research method, notwithstanding it is subjected to several criticisms such as: a lack of controls for inadequate measurement of independent and dependent variables, arbitrariness in the interpretation of data, and low reliability because the findings are unlikely to be replicated (Carlsmith, Ellsworth, & Aronson, 1976; Kazdin, 1980; Yin, 1999). The lack of rigor of case study method seems to lead to other concerns which pertain to scientific communication, such as the lack of basis for generalization and comparison with other studies which is essential to science. In this sense, other influential mainstream research methods (e.g., randomized field trials or “true experiments”) could be preferred (Yin, 1999). Because researchers may find difficult to select from large amount of data what has to be included, case studies may take too long and thus result in massive and unreadable documents. Further, they may raise ethical problems concerning the level of intrusion in reporting detailed information on a single individual or small group. Therefore, these limitations may account for researchers’ and journal editors’ tendency to avoid this kind of scientific publications. However, as stated by Boor (1982), “a journal’s sensitivity to its citation impact factor status is likely to result in its publication of articles that have more limited scope, less innovation, less creativity, and perhaps less enduring significance” (p. 976). In this regard, as stated by Runyan (1982) case study method should enhance theoretical innovations in psychological field because it can produce rich and interesting data as well as challenging existing theory. This probably means that influential scientific literature tends to be cautious in favoring divergent contributions which propose risky hypotheses or creative intuitions.

As indicated by the study results, two main phenomena are examined by case studies which refer to neuroscience and psychosocial risk. This counterposition is well illustrated also by the two journals welcoming almost the entire sample of case studies that are: Journal of Cognitive Neuroscience and American Psychologist, which respectively deal with issues relating to neuroscientific research and professional psychology.

Neuroscience seems to be a field where case studies are particularly present, as also confirmed by Shallice (1979) who considered the case study approach as the most promising neuropsychological technique for providing information on the functional organization of cognitive subsystems. A possible rational could rely on the relevance of extreme or unique cases (Yin, 2009), where a specific injury or disorder is so rare that any single case is worth documenting and analyzing. Indeed, some syndromes occur so rarely that scientists have been unable to establish any common patterns (Yin, 1970, 1978). We can note that diagnosis and assessment represent the main efforts of researchers who aim at confirming and improving consolidated theoretical models on

neurocognitive functioning. In this sense, “one rational for a single case study is when it represents the critical case in testing a well-formulated theory” (Yin, 2009, p. 47). The rational of such a single case study is to determine if a theory can be confirmed, challenged or extended (Yin, 2009, p. 47). It can be used to determine whether a theory’s propositions are correct or whether some alternative set of explanations might be more relevant, because idiographic procedure and a search for nomothetic laws are not necessarily contradictory (Mills, Durepos, & Wiebe, 2010). As proposed by Flyvbjerg (2006), the single-case design can be thus used for hypothesis testing through the process of “falsification”, according to which if just one observation does not fit the proposition, then the proposition is considered not valid.

Instead, with regard to psychosocial risk, case study mainly serves a double function regarded as useful for psychological intervention: to capture the circumstances and conditions of a situation of public interest or to observe a phenomenon previously inaccessible to social science inquiry. In the first situation, case study is representative or typical (Yin, 2009) because it is assumed to be informative about the experiences of the average person or institution and can help develop best and innovative practices in a specific field. In the second one, it can be considered as revelatory (Yin, 2009) because it provides researchers with the opportunity to analyze a phenomenon that is difficult to study systematically or by traditional research methods. Innovation and exceptional events management thus represent the main areas where psychology tends to provide intervention guidelines for the reduction of psychosocial risk, in terms of both social injustice and lack of community safety. In this sense, case study can be a very relevant means to deal with complexity and provide professionals with ecological perspectives. As some noted methodologists suggest, experiments, though establishing the efficacy of a treatment (or intervention), are limited in their ability to explain “how” or “why” the treatment necessarily worked, whereas case studies could investigate such issues (e.g., Shavelson & Townes, 2002). Besides, a recent study (Open Science Collaboration, 2015) which saw an international team of 270 scientists repeat 100 experiments published in top psychology journals, found that they could reproduce only 36% of original findings, thus demonstrating that also psychology experiments fail the replication test. Case studies may therefore be valued as adjuncts to experiments rather than as alternatives to them (Cook & Payne, 2002).

These results have to be considered preliminary, because our sample did not include journals with Impact Factor lower or equal to 5. Further studies analyzing all the indexed journal are thus needed. However, based on these preliminary considerations and on the increasing distance between theory and practice in professional psychology (Langher, Brancadoro, D’Angeli, & Caputo, 2014), we would like to underline the potential richness of such contributions for researchers, professionals, and for the development of the psychological discipline itself. If high impact factored scientific journals in psychology decided to give more attention to case studies, accepting to publish them quite more often, researchers would surely invest more time and effort in studying single cases. The

more case studies would be published, the more their methodology would be refined and enhanced, thus positively affecting the development of knowledge in psychology.

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¹ The journal *Monographs of the Society for Research in Child Development* (the 7th in the list) was excluded because of its monographic nature that made it incomparable with the other journals. Therefore, it was replaced by the 17th journal in the list that was *Journal of Consulting and Clinical Psychology*.