Clarifying knowledge withholding: A systematic literature review and future research agenda

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A B S T R A C T

Knowledge withholding (KW) is a relatively recent multidimensional construct in the knowledge management literature. A diverse and polymathic series of studies has aimed to understand the conceptual and empirical inconsistencies associated with KW. Based on a systematic literature review, in this paper, we examine and discuss theoretical backgrounds, antecedents, consequents, and methodological choices related to KW research by reviewing papers published between 2000 and 2021. Results show differences between KW-related constructs, namely knowledge hiding and knowledge hoarding, offering an integrative view of the phenomena. Findings clarify differences between KW constructs. This paper also offers insight into future research directions related to KW by elaborating on identified inconsistencies and gaps. Our work contributions include an overview and clarification of the KW research agenda, proposing a comprehensive analytic framework that aims to guide future research and serve practical implications.

1. Introduction

Knowledge withholding (KW) is the act of impeding knowledge sharing in organizations (Webster et al., 2008). KW-related concepts, such as knowledge hiding or knowledge hoarding, are recent in the knowledge management literature (Connelly, Zweig, Webster, & Trougakos, 2012; Issac & Baral, 2018; Serenko, 2020; Xiao & Cooke, 2019). KW was first mentioned in 1992 (Attewell, 1992). However, KW as a research focus in knowledge management literature has recently gained research traction (Oliveira, Curado, & de Garcia, 2021). KW research relies heavily on understanding individual behavioral drivers' influence on individual and organizational consequences (Silva de Garcia, Oliveira, & Brohman, 2020).

KW-related phenomena assume deliberate and accidental forms of behavior that restrict organizational innovation (Kang, 2016) and negatively impact organizational performance (Connelly et al., 2012). Similarly, KW-related phenomena lead to negative social interactions (Evans, Hendron, & Oldroyd, 2015). Such concealing behavior causes additional spending of resources, including duplication of existing knowledge, and increased organizational costs (Serenko & Bontis, 2016). However, several KW-related phenomena, such as knowledge disengagement (Ford & Staples, 2008), knowledge hiding (Connelly

et al., 2012), knowledge hoarding (Connelly et al., 2012; Evans et al., 2015), knowledge sharing hostility (Husted, Michailova, Minbaeva, & Pedersen, 2012), and knowledge contribution loafing (Sun, Zhang, & Meng, 2020), remain poorly defined in the knowledge management field (Connelly, Černe, Dysvik, & Škerlavaj, 2019; Holten, Hancock, Persson, Hansen, & Hogh, 2016; Silva de Garcia et al., 2020). The growth of empirical research aimed at understanding other KW phenomena is paired with a scarcity of conceptual works attempting to differentiate KW. Consequently, overlapping and conflicting views of behavioral phenomena behind KW persist (Oliveira et al., 2021). Webster and colleagues (2008) consider that knowledge hoarding and knowledge hiding are part of KW behaviors. On the other hand, Conelly and colleagues (2012) propose that knowledge hoarding is a separate yet *related* concept of knowledge hiding. Such differences, based on the intention to withhold knowledge whether *requested by others or not*, conceptually shape the KW literature (Oliveira et al., 2021; Silva de Garcia et al., 2020; Strik, Hamstra, & Segers, 2021). As a result, knowledge hiding as a standalone construct of KW is frequently confusing since KW is often conceptualized as knowledge hiding (Lin & Huang, 2010; Wang, Lin, Li, & Lin, 2014; Wu, 2020). Similar conflicting uses happen concerning knowledge hiding and other KW-related constructs, such as knowledge hoarding, exacerbating inconsistencies in the literature (Issac & Baral,

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2018).

Despite literature efforts to bridge KW-related constructs (Oliveira et al., 2021; Silva de Garcia et al., 2020), there is still an overlap between KW scopes, thus leading to inconsistent applications of KW-related phenomena. Strik and colleagues (2021) discuss the continuous need for theoretical sophistication that could lead to a sharper distinction among KW constructs. Recent literature reviews on KW (Strik et al., 2021) and KW-related phenomena (Xiao & Cooke, 2019; Oliveira et al., 2021; Silva de Garcia et al., 2020) bring forth frameworks aiming for clarification of KW. However, in-depth integrated literature reviews assessing theoretical bases, empirical evidence, and methodological approaches behind KW remain non-existing.

The combined growth of knowledge hiding as a dimension of existing KW behaviors presents a disparity between the number of empirical and conceptual works surrounding KW-related dimensions (Strik et al., 2021). This unbalance has created several research gaps that we propose to address in our paper. Expanding on such a gap, our work's main objective is two-folded. First, we address the need to clarify existing KW dimensions, providing the groundwork to understand conceptual differences, their behavioral and organizational drivers, and their main consequences. Then, we study research design choices to further understand trends and gaps that can further support the research of KW-related phenomena. We define four research questions, aiming to explore the most theoretical basis that supports KW research (RQ1), what individual and organizational level antecedents (RQ2) and consequences (RQ3) shape KW, and used methodological choices driving KW work (RQ4). Building on the need to clarify and assess the KW research agenda, our work conducts a systematic literature review of 90 papers focused on KW to understand the phenomena and critically assess the existing literature (Post, Sarala, Gatrell, & Prescott, 2020). We aim to help close this gap by proposing an analytic framework built after conceptual and empirical research of KW phenomena.

Moreover, our research aims to understand, pinpoint, and develop a critical analysis of used theories, methodologies, and instruments behind KW. Similarly, we also address research settings and research design related to KW. We discuss existing gaps and propose future research directions based on the results.

Our main findings suggest patterns in KW research, stressing existing and new research and conceptual gaps. Results also show the growth of research focused on knowledge hiding as a KW construct, whose operationalization presents several research and conceptual overlaps with other KW constructs and KW itself. The paper is structured as follows: First, we discuss the evolution of KW and KW-related constructs in the literature, stressing conflicting views. Then, we develop our systematic literature review by defining and presenting our review protocol. We then present the main findings, leading to the identification and discussion of current gaps and uncovering a research agenda. The main contributions of our work provide a blueprint for conceptual clarification of KW dimensions through the proposal of a comprehensive analytical framework to guide future research.

2. Literature review

2.1. Knowledge withholding theoretical basis

Knowledge is a resource of utmost importance for organizations (Slater & Narver, 1995), and is defined as a crucial asset to ensure innovation (Chaithanapat, Punnakitikashem, Oo, & Rakthin, 2022; Lin, Lu, Zhou, & Li, 2022; Tiberius, Schwarzer, & Roig-Dobón, 2021), survivability (Shane, 2000), and performance (Audretsch, Belitski, Caiazza, & Lehmann, 2020) in the current interconnected (Cheng, Liu, & Chang, 2022; Hohberger & Wilden, 2022; Venkatesh, Davis, & Zhu, 2022) and volatile economic markets (Chopra et al., 2022; Donthu & Gustafsson, 2020; Wünderlich, Gustafsson, Hamari, Parvinen, & Haff, 2020). The development of knowledge management research has also led to a growth of research dedicated to the negative aspects of knowledge

management, focused on the effects of counterproductive forms of knowledge behavior and their impact on organizations (Webster et al., 2008; Connelly et al., 2012). By extension, KW regards the set of counterproductive knowledge behaviors that portray circumstances in which knowledge is not diffused inside an organization (Webster et al., 2008). Summarizing Webster et al. (2008), Peng (2013), and Kang (2016) rationales, KW regards the concealment of specific task information, ideas, and know-how. Given such a broad definition, KW-related literature encompasses several distinctive behaviors, including knowledge-sharing hostility (Husted et al., 2012; Woodfield & Husted, 2019), knowledge contribution loafing (Sun et al., 2020), knowledge disengagement (Ford, Myrden, & Jones, 2015), knowledge hoarding (Peng, 2013), and knowledge hiding (Connelly et al., 2012). Among the KW-related behaviors, knowledge hiding is among the most discussed in the knowledge management literature (Xiao & Cooke, 2019). Knowledge hiding is related to the intentional hiding of knowledge between peers, even upon request (Connelly et al., 2012).

On the other hand, knowledge hoarding is related to the sometimes *quasi*-accidental nature of the accumulation of knowledge by individuals in the organization when such knowledge is not requested (Oliveira et al., 2021). According to Webster and colleagues (2008), several KW-related behaviors share similar antecedents linked to power play and organizational politics (Malik et al., 2019), interpersonal dynamics (Kumar Jha & Varkkey, 2018), organizational culture (e.g., Abubakar, Behravesh, Rezapouraghdam, & Yildiz, 2019), individual characteristics (e.g., Wang et al., 2014), and territoriality (Singh, 2019). Such a perspective, under the knowledge-based psychological ownership perspective (Peng, 2013), also echoes parallels with other KW behaviors, such as knowledge contribution loafing (Sun et al., 2020), where feelings of threat and lack of power motivate individuals to stop contributing with knowledge. Other works refer to similar territorial behavior rationales (Jiang, Hu, Wang, & Jiang, 2019), including identity-oriented marking (e.g., knowledge as an extension of the self in need of control) and anticipatory and reactionary defenses under the scope of emotional response-based bias (e.g., Ford et al., 2015; Jiang et al., 2019; Men et al., 2020) as drivers of KW behaviors. Given the similarities found in theoretical backgrounds related to different KW dimensions, we propose the following research question:

Research question 1 (RQ1) – What is the most relevant theoretical basis that supports research on KW?

2.2. Knowledge withholding empirical evidence

Recent empirical works study knowledge hiding as a standalone construct, often addressing its relationship with KW (Webster et al., 2008) through territoriality (Kang, 2016), psychological ownership (Peng, 2013), reluctance, and distrust (Connelly et al., 2012). Nevertheless, despite the similar theoretical drivers guiding empirical work, KW complexities suggest differences among such behaviors (Oliveira et al., 2021). Connelly et al. (2012) work expands on the idea of separating KW constructs, in particular, knowledge hiding and knowledge hoarding. To the authors, knowledge hiding is related to counterproductive workplace behaviors, related aggression, social undermining, incivility, and deception. On the other hand, knowledge hoarding is unrelated to knowledge hiding and is part of a possible repertoire of similar behaviors also linked to KW. Considering knowledge hiding as a complex and multidisciplinary aspect of KW, the authors suggest a threefold split in behavioral output defining the construct: evasive hiding, rationalized hiding, and playing dumb.

The large focus on knowledge hiding as a standalone construct in KW led to a narrowing of the level of analysis from KW as a whole (Xiao & Cooke, 2019). Therefore, empirical research translating conceptual papers is yet scarce and sometimes misleading in the language (Evans et al., 2015; Peng, 2013; Strik et al., 2021). Consequently, empirical evidence on leading causes and consequences of KW-related constructs follows a similar overlapping pattern (Xiao & Cooke, 2019; Strik et al.,

2021). Considering the examples found in the literature that portray knowledge hiding as part of KW (Webster et al., 2008; Connelly et al., 2012, 2015, 2019) and other instances where knowledge hiding is discussed as the same that of KW (Peng, 2013; Serenko & Bontis, 2016; Tsay, Lin, Yoon, & Huang, 2014), we present the following research questions:

Research question 2 (RQ2) – What are the antecedents of KW at both the individual and organizational levels?

Research question 3 (RQ3) – What are the consequences of KW at both the individual and organizational levels?

Research question 4 (RQ4) – What methodological choices are used in KW research?

2.3. Knowledge withholding overlapping concepts

Expanding on the complexities of KW-related constructs, evidence shows several overlapping perspectives defining KW behaviors (Silva de Garcia et al., 2020; Oliveira et al., 2021). By extension, while conceptual efforts try to clarify KW-related behaviors by stressing their differences (Oliveira et al., 2021), similarities in theoretical backgrounds lead to inconsistent views. Knowledge hiding regards a behavior portraying the *intentional* concealment of information upon request (Connelly et al., 2012; Oliveira et al., 2021). On the other hand, knowledge hoarding regards withholding knowledge that is not requested (Oliveira et al., 2021). However, conflicting views on behavioral intention, availability of knowledge, and information request in research present conceptual overlaps between KW dimensions (Strik et al., 2021) (Table 1).

Several works disregard the overlapping perspectives found in

Table 1
Multiple perspectives between concepts in KW literature.

Authors	Perspectives
Connelly et al. (2012)	"**Knowledge hiding** is defined as "an intentional attempt by an individual to withhold or conceal knowledge that has been requested by another colleague" (p. 3)
Evans et al. (2015)	"**knowledge hoarding**—an individual's deliberate and strategic concealment of knowledge and information or the fact that they may possess relevant knowledge or information" (p. 2)
Ford et al. (2015)	"In comparison to the other "lack of sharing" behaviors, like **knowledge hoarding** where the individual actively protects the knowledge and does not share it, this appears to be more frequent as other research has identified **knowledge hiding** (i.e., protecting requested knowledge) and **hoarding** to be low-base rate behaviors" (p. 19)
Kang (2016)	"**Knowledge hoarding**, on the other hand, is merely the act of retaining knowledge, often without realizing it may be of value to others." (p. 3)
Zhao and Xia (2017)	"**knowledge hoarding** as individuals' intentional attempts to conceal the knowledge that has been requested or unrequested by another person" (p. 2)
Wang et al. (2018)	"**knowledge hoarding** occurs when an employee unintentionally withholds knowledge from colleagues (Webster et al., 2008). A growing body of literature has identified the prevalence and threat of a more deliberative form of **withholding knowledge, knowledge hiding**." (p. 3)
Burmeister, Fasbender, and Gerpott (2019)	"**knowledge hiding**, defined as an intentional attempt to withhold knowledge that has been requested" (p. 281)
Woodfield and Husted (2019)	"**hostility towards engaging in knowledge sharing** — that is, hoarding and/or rejecting knowledge —" (p.2)
Serenko (2020)	"(…) **knowledge hiding**, which is accompanied by an unambiguous request to share knowledge (…)" (p. 740)

research over what is a critique of semantics (Evans et al., 2015; Xiao & Cooke, 2019). Such critique draws parallels behind similar discussions of consistency and semantic consistency in developing knowledge management as an organizational discipline (Evans et al., 2015). Conversely, several ongoing discussions are still not unanimous about the separation of knowledge sharing and KW as different constructs (Kang, 2016; Strik et al., 2021).

Recent efforts to establish boundaries among KW-related constructs (Oliveira et al., 2021) further stress the conceptual gap that hinders KW-related research (Strik et al., 2021). We argue that a lack of commonality in language among KW-related constructs might be further exacerbated by the attention and sheer volume of knowledge management research, often outreaching multidisciplinary growth (Serenko & Bontis, 2016) in different areas of science.

3. Methods

We conducted a systematic literature review to address our research questions. The systematic literature review methodology promotes replication, provides a picture of current research streams, and permits refinement toward highlighting research gaps (Köhler & Cortina, 2021; Williams, Clark, Clark, & Raffo, 2021).

Considering the challenges of building a literature review (Duriau, Reger, & Pfarrer, 2007), our work follows a three-fold focal point approach to address our research gap (Post et al., 2020). The first is grounded on an exposition of emergent and current perspectives by identifying and contrasting different theories behind KW. The second focal point aims to clarify existing constructs by exploring different research works that provide insight into the taxonomies and ambiguity of concepts. The last focus of research lies in establishing boundary conditions for KW-related phenomena through analyzing different research settings.

Our review protocol also follows a four-fold approach, expanding the PRISMA guidelines and checklists proposed by Williams et al. (2021). Therefore, the choice of a protocol reflects an integration of both protocols considering: a) the universe of potentially relevant studies, b) the domain and journal criteria that lead to a higher inclusion and gathering of knowledge, c) the contribution towards a synthesis of information, and d) the importance of the selected data in allowing the conduction of a report with inclusive findings (Williams et al., 2021).

3.1. Domain and Journal criteria of selection

KW is a fast-growing, novel topic in organizational science literature, with an array of research foci (Connelly et al., 2019). Therefore, the current selection of published works aims to include different domains. The growing difficulties of literature grounded on multidisciplinary (cf. Webster et al., 2008; Connelly et al., 2012) pose barriers to a universal acceptance of domains and criteria. Therefore, we considered published papers focused on KW-related concepts in highly ranked journals, given their quality and example, considering both academic and practitioner communities alike (Duriau et al., 2007). We conducted a document search in both Scopus® and WebofScience®, considering the databases' strength and suitability for research evaluation across scientific activities (Mongeon & Paul-Hus, 2016). The used keywords are "knowledge withholding", "knowledge hiding", "knowledge hoarding", "knowledge counterproductive behavior", "knowledge manipulation", and "knowledge sharing disengagement" as either research topics, abstract inclusion criteria, or article titles. Table 2 details the research strings used to search the databases (see Table 3).

Selected papers ranged between 2000 and 2021, considering the recent growth of KW as a research topic (Serenko, 2020; Xiao & Cooke, 2019). We filtered selected papers in indexed Q1 and Q2 journals with an *h*-index higher than 30. We reassessed papers close to the set limit, considering the exemplary use of the *h*-index alone as inclusion criteria (da Silva & Dobránszki, 2018).

Table 2
Research strings considered in the search process with the inclusion criteria.

Database	String
Scopus	TITLE-ABS-KEY ("knowledge withholding" OR "knowledge hiding" OR "knowledge hoarding" OR "knowledge counterproductive behavior" OR "knowledge manipulation" OR "knowledge sharing disengagement") AND PUBYEAR > 1999 AND PUBYEAR < 2022 AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (DOCTYPE , "ar"))
Web of Science	TS = ("knowledge withholding" OR "knowledge hiding" OR "knowledge hoarding" OR "knowledge counterproductive behavior" OR "knowledge manipulation" OR "knowledge sharing disengagement") and Articles (Document Types) and PY = (2000–2021).

Table 3
Theoretical rationales in KW conceptual work and research.

		%	f
Theoretical Background[1]	Social Exchange Theory	43%	37
	Conservation of Resources Theory	18%	16
	Psychological Ownership Theory	11%	10
	Social Learning Theory	8%	7
	Self-determination Theory	7%	6
	Leader Member Exchange Theory (LMX)	6%	5
	Social Comparison Theory	5%	4
	Displaced Agression Theory	5%	4
	Social Identity Theory	3%	3
	Social Cognitive Theory	3%	3
	Agency Theory	3%	3
	Theory of Reasoned Action	3%	3
	Territorial marking behaviors	2%	2
	Social Categorization Theory	2%	2
	Affective Events Theory	2%	2
	Cognitive-affective Personality System Theory	2%	2
	Interdependence Theory	1%	1
	Knowledge Governance Approach	1%	1
	Construal level theory	1%	1
	Big Five Personality Theory	1%	1
	Achievement Goal Theory	1%	1
	Herzberg's Two-factor Theory	1%	1
	Model of Interpersonal Behavior	1%	1
	Rethorical Theory	1%	1
	Absorptive capacity theory	1%	1
	Theory of Co-operation and Competition	1%	1
	Job Design Characteristics	1%	1
	National/Cultural Work Ethics	1%	1
	Perception of Organizational Politics	1%	1
	Self-conscious emotions view	1%	1
	Attribution Theory	1%	1
	Organizational Citizenship Behavior	1%	1
	Organizational Justice	1%	1
	Intergenerational Knowledge Sharing model	1%	1
	Broaden-and-build Theory	1%	1
	Adaptative Theory	1%	1
	Regulatory Focus Theory	1%	1
	Communication Visibility Theory	1%	1
	Protection Motivation Theory	1%	1
	Theory of Interpersonal Behaviour	1%	1
	Relational Model Theory	1%	1
	Motivation Theory	1%	1
	Cognitive Appraisal Theory	1%	1
	Stewardship Theory	1%	1
	VIE Theory	1%	1
	SECI Model	1%	1
	Engagement Theory	1%	1

[1] The number of theories exceeds the number of papers because several papers present multiple theories.

3.2. Study inclusion criteria

After the initial screening, we assessed both conceptual and research papers, expanding the discussion of the existing research agendas (Post et al., 2020). The selection led to the inclusion of research papers with a clear focus on management, human resources management and organizational behavior. We conducted an abstract evaluation to assess the appropriateness and relevance of the reported research. Then, we addressed the methodology used in assessing the paper research designs, considering their conceptual and empirical nature. Finally, we filtered empirical works according to their designs for quantitative, qualitative, or mixed methods (Scandura & Williams, 2000). An article was considered relevant to KW when either of the KW dimensions was part of the research's core discussion. Articles not published in English version were excluded.

3.3. Process

The initial article sample contained 580 articles. After removing duplicates and non-relevant studies, the sample was reduced to 218 articles. Following the current research protocol, the final sample includes 84 research articles and six conceptual articles. Fig. 1 provides a detailed overview of the systematic literature review process.

Following previous recommendations on using literature review techniques (Jauch, Osborn, & Martin, 1980; Erdener & Dunn, 1990), we adopted an additional five-step process approach to survey our sample (Duriau et al., 2007; Bernerth & Aguinis, 2016).

The coding process considered both theoretical background and research context, guided by Duriau et al.'s (2007) recommendations on content analysis codification. Given the time constraints of this research, we assessed coding reliability in two ways: first, the studies were compared given the proposed antecedents, consequences, methodology and theoretical background used to guide the studies. After achieving convergence through theoretical bridges found in research, we devised coding strategies by following criteria grounded in the theoretical nature of the construct (Post et al., 2020).

3.4. Content analysis

We followed Duriau et al.'s (2007) recommendations for implementing a coding process to understand the operational-level and conceptual-level research.

Regarding the operational-level analysis, the coding system considered the type of article (research/conceptual), the time-horizon (cross-sectional/longitudinal), the research design (quantitative, qualitative), the methodology (single, multimethod or mixed-method), the scope (national/international), and the setting (related with business and industrial context) (Scandura & Williams, 2000). Regarding the conceptual level of analysis, we devised our coding according to clusters of individual and organizational-level variables leading to or resulting from KW behavior. The original authors proposed coding rationales for such clusters or grouped them according to justified theoretical rationales. Appendix A presents the coding sources.

4. Results

This section presents the review results, developed after analyzing 90 papers, as detailed in Section 3.

Results show exponential growth in KW-related research over the last years, with particular significance in the last 3 years (Fig. 2). Fig. 2 provides an overview of papers published by year (2007–2021). Findings also show that Luo and Černe are the most productive authors in the sample, participating in five and four of the considered papers, respectively. Regarding author collaborations, no recurring paired authors are found. Such a finding reflects the exponential nature of the growth in KW scientific production, paired with the multidisciplinary focus of the subject being researched.

Considering most relevant publications (Fig. 3), results show that 19 (21.1%) addressed papers were published in the Journal of Knowledge Management. The second highest relevant publication is the Journal of
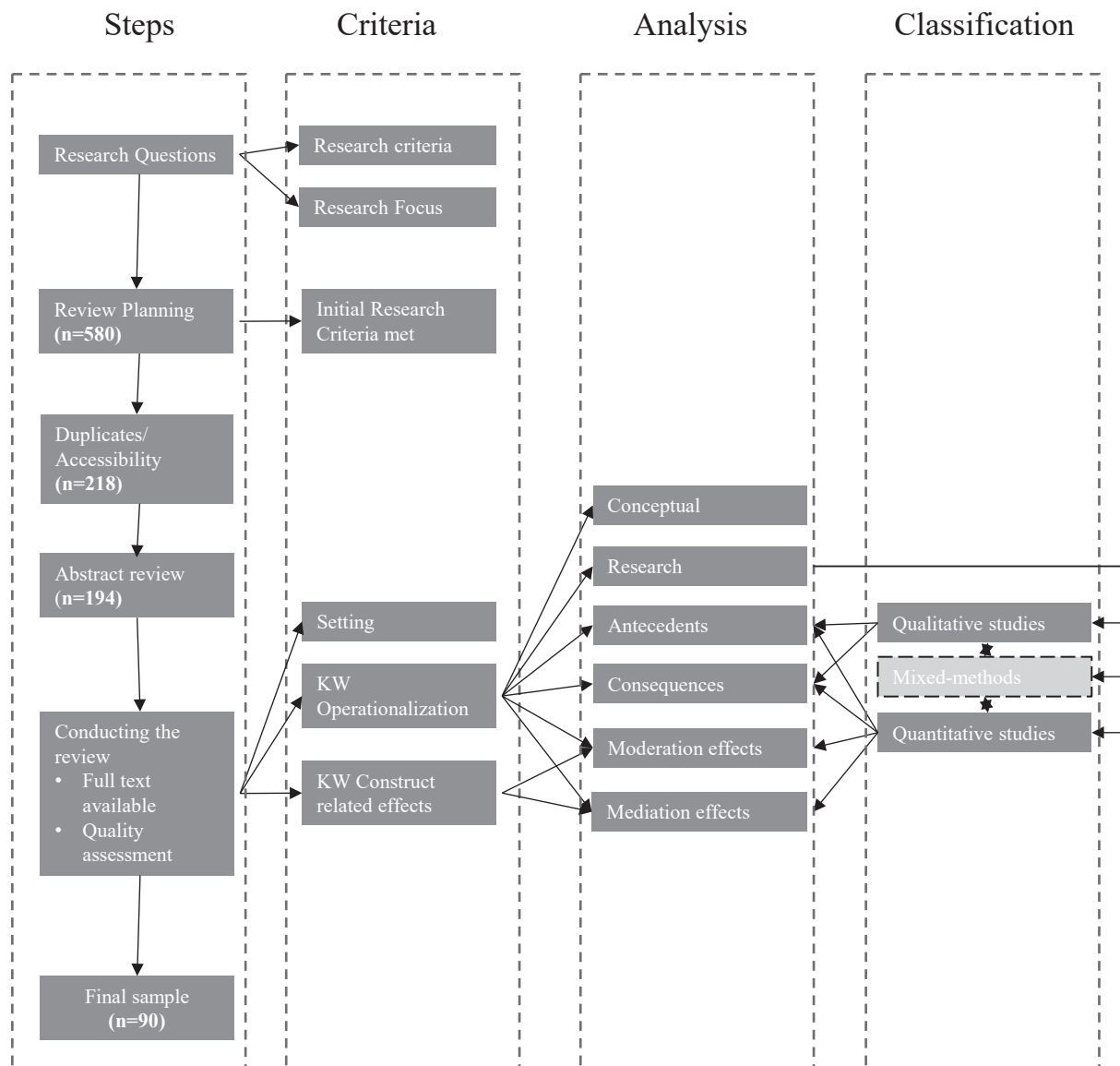
Fig. 1. Systematic Literature Review Process.

Business Research (10, 10.11%), followed by both the Journal of Organizational Behavior (4, 4.4%) and Knowledge Management Research Practice (4, 4.4%).

Narrowing the analysis to individual publications in the sample (Fig. 4), results show two papers with a total global number of citations exceeding 300 (Connelly et al., 2012; Černe, Nerstad, Dysvik, & Škerlavaj, 2014). Similarly, both papers also present the highest number of local citations among the covered papers in the sample. Both works represent conceptual and measurement development benchmarks for knowledge hiding, followed by Peng (2013) work on KW. Fig. 4 details the highest local and global cited documents in the sample (see Fig. 5).

4.1. The theoretical structure of the literature

Given the sociological and psychological nature of knowledge, the review presents some prevalence of individual-level psychosocial theories as conceptual background leading to the research of KW. Most papers (74) address knowledge hiding as the main research focus, representing 82.2% of the sample.

Regarding conceptual rationales (RQ1), results show that 41% (37) of the articles address the social exchange theory as a theoretical background for KW research, bridging knowledge hiding and knowledge hoarding. The social exchange theory addresses social behavior through economic principles of cost-benefits in social sharing, resulting in an analysis of risks and benefits (Emerson, 1976). The theory, while more focused on the economic rather than psychological aspects of social exchange, is the most adopted perspective used in KW research, given its discussion of emergent properties and the anticipation of benefit in the exchange (Xiao & Cooke, 2019). Such a perspective acts as a rationale for empirical work, supporting a view of knowledge as a source of power (e.g., Qureshi & Evans, 2015). Similarly, 18% (16) of the research papers use the conservation of resources theory (Hobfoll, 1989) for both knowledge hiding and knowledge hoarding. The conservation of resources theory explains the human motivation to engage in behaviors that drive the conservation or the pursuit of new resources when psychological stressors are at play. Peng's approach (2013) on psychological ownership of knowledge was found in ten (11%) of the papers. Paving the way for research focused on defensive or territorial behaviors towards a sense of property protection, such rationale is presented as a bridging theory between research concepts. Thus, Peng (2013) propositions drive both knowledge hiding (Abubakar et al., 2019; Singh, 2019) and knowledge loafing contribution (Sun et al., 2020) research.
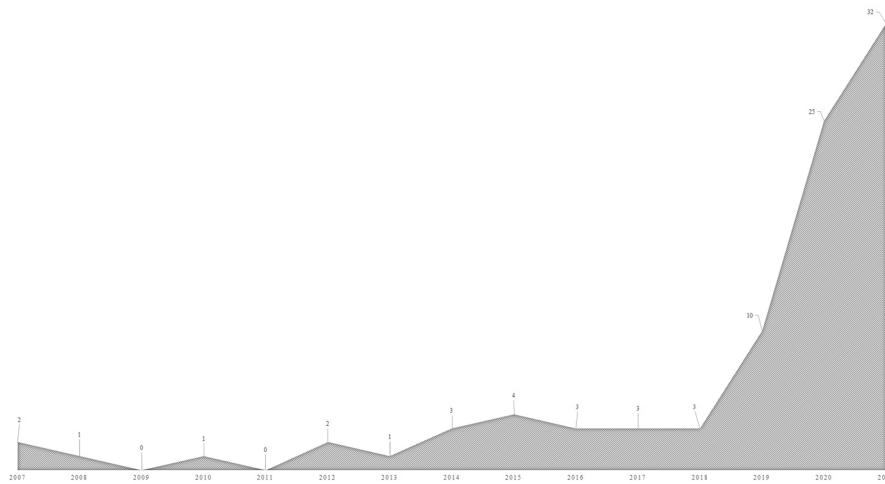
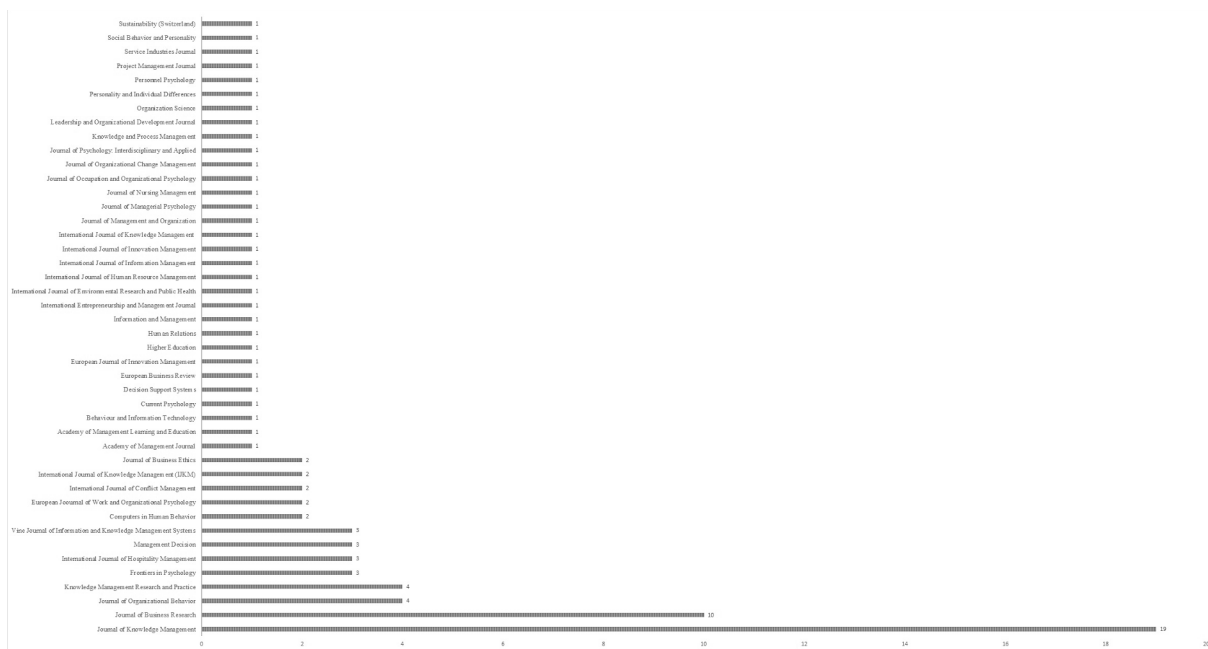**Fig. 2.** Addressed papers (per year).

Fig. 3. Number of papers by journal (n = 90).

Building on the psychosocial aspects of knowledge results also shows a focus on both self-determination theory (7% [6]) and social learning theory (8% [7]) driving KW research. Given the psychological needs for competence, autonomy, and social relations as part of intrinsic motivations that drive engagement to action (Ryan & Deci, 2000) and imitation as a process of learning through socialization (Bandura, 1971), the two theoretical perspectives drive research considering both the supervision role (Arain, Bhatti, Ashraf, & Fang, 2020; Men et al., 2020; Offergeit et al., 2019) and psychological safety importance (Jiang et al., 2019; Men et al., 2020) in knowledge hiding behavior. While the theoretical stances found in the less represented dimensions of KW suggest similar conceptual directions, recent research seems to be exploring new theoretical limits by also considering generational differences (Woodfield & Husted, 2019) and by bringing the agency theory to knowledge hiding research (Khoreva & Wechtler, 2020).

Considering antecedents (RQ2) and consequences of KW (RQ3),

results show a diversity of individual and organizational variables. Table 4 presents a summary of the sample. Results show that 16 (19%) of the discussed individual antecedents in the research papers are related to leadership relationships and exchange. Organizational level antecedents are present in ten (12%) of the papers, consistent with the perceptions of existing knowledge management infrastructures (Serenko & Bontis, 2016), managerial practices (Trusson, Hislop, & Doherty, 2017), and governance mechanisms (Husted et al., 2012) in KW. Task and job-related consequences of KW are reported in eight (18%) of the covered articles. Of note are KW consequences related to negative impacts on individuals (e.g., Khoreva & Wechtler, 2020) and team performance (e.g., Chaterjee et al., 2021).

Considering the social exchange theory focus on the importance of communication and mutual gains (Emerson, 1976), findings are consistent with the social nature of tasks and the psychological meaning behind knowledge. Creativity and innovation appear in 15.6% of the
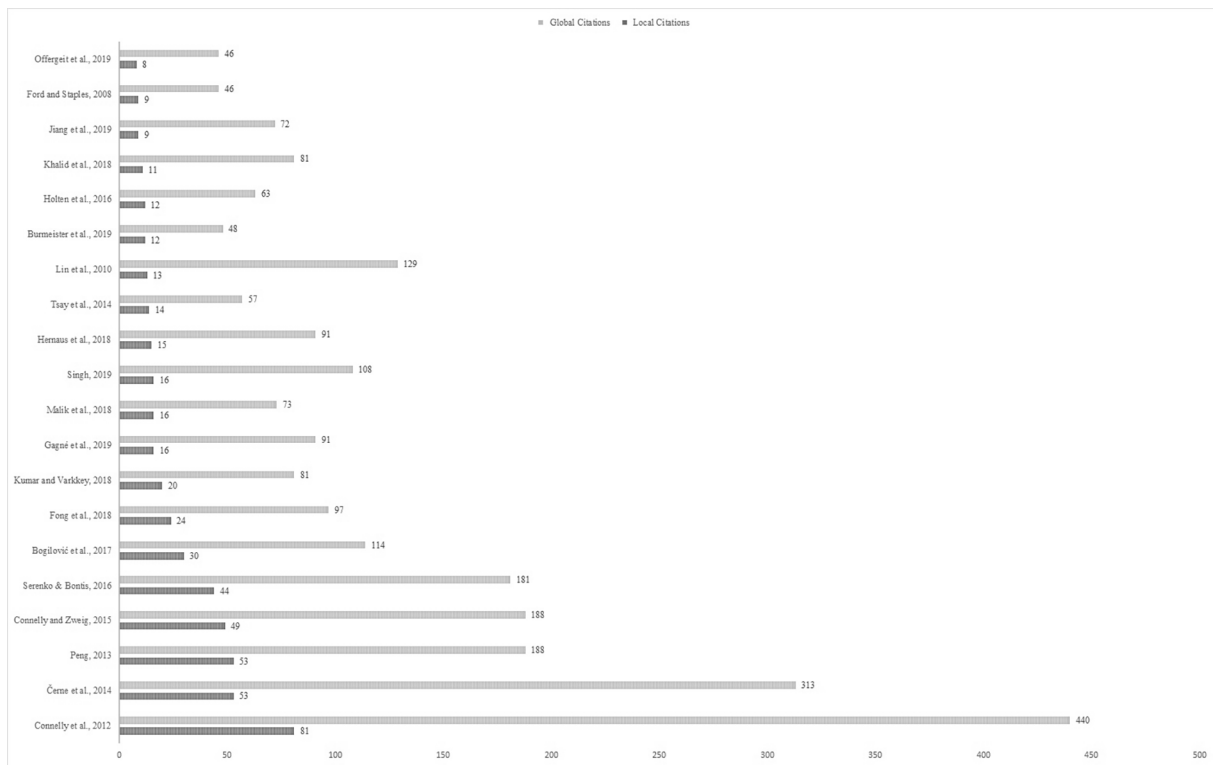
Fig. 4. Top 20 papers (local and global citations). Note: Local citations indicate frequency of citations within the reviewed sample. Global citations indicate the frequency of citations outside of the reviewed sample.
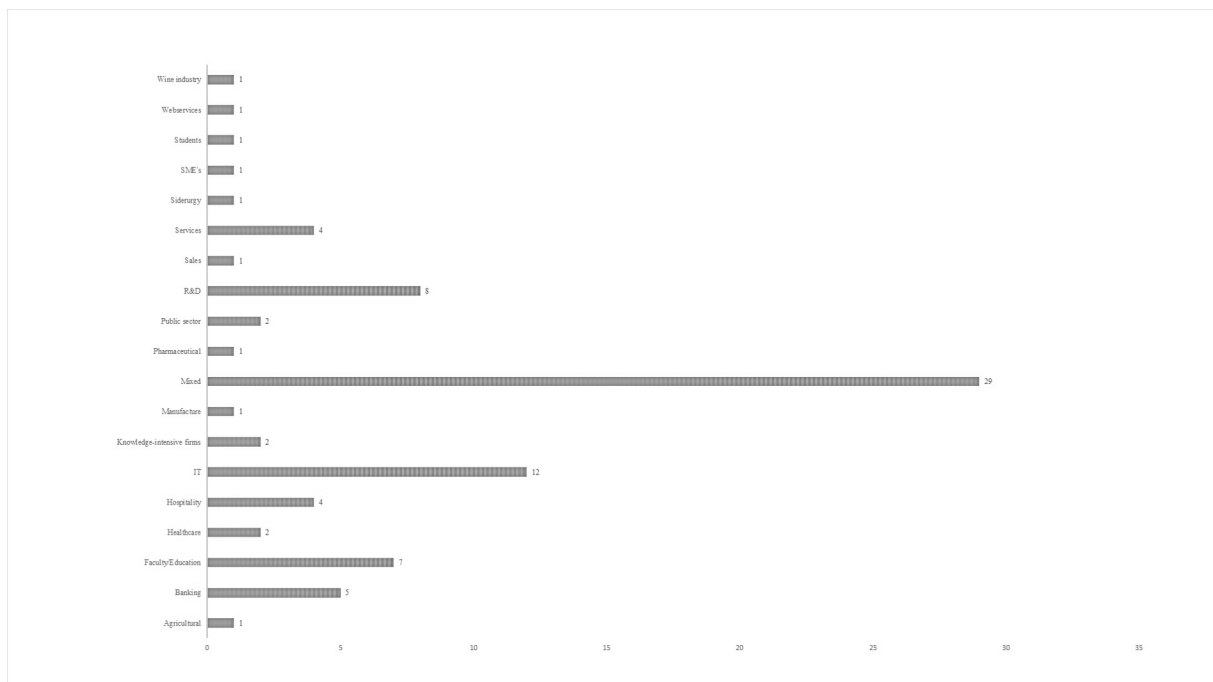

Fig. 5. Research settings (empirical papers n = 84).

articles, bridging theoretical rational *au pair* with knowledge creation as a socially driven cycle (*vid* Nonaka, Toyama, & Konno, 2000). While explicit knowledge characteristics are discussed (Peng, 2013; Serenko & Bontis, 2016), no study regards knowledge specificities. Both moderation and mediation analysis results did not establish a pattern hinting at a research trend.

4.2. Empirical evidence of the literature

Considering the research design options used in research (RQ4), results show that 77% (69) of the papers use a quantitative approach based on the survey as the principal choice of instrument (Table 5). While also quantitative, one instance (Bogilović, Cerne, & Škerlavaj, 2017) includes a quasi-experimental manipulation of KW activities, followed by a

Table 4

Summary of discussed variables in KW research (n = 81).

Variables	f	Antecedents (%)	f	Consequences (%)	f	Mediation (%)	f	Moderation (%)	Labeled after[1]
Aggression	11	14%			2	2%	2	2%	Negative acts, Ostracism, Cyber Incivility, Hostile bias, Envy, Gossip, Bullying, Contempt, Dehumanization, Stratification
Career insecurity	4	5%			1	1%	1	1%	Competitiveness, career insecurity, job insecurity
Communication	4	5%				0%	4	5%	Message transparency, Network characteristics, Shared goals, Communication reciprocity, Language
Confidence	1	1%				0%		0%	
Criativity and Innovation	0	0%	7	20%		0%		0%	Criativity, Innovation
Employee Characteristics	3	4%	1	1%		0%	1	1%	Tenure, Overqualification, Technological aptitude, Emotional Intelligence
Generational gap between peers	1	1%		0%		0%		0%	
Justice	5	6%	1	1%	2	2%		0%	
Knowledge Reciprocity	3	4%		0%		0%	2	2%	Knowledge sharing, Community Sharing, Knowledge Characteristics, Knowledge Climate
Leadership (Types, Relationship and Exchange)	16	20%		0%	3	4%	1	1%	Abusive Leadership, Ethical Leadership, Leader and Member exchange quality, Supervisor knowledge hiding, Altruistic Leadership
Motivation and engagement	5	6%		0%	2	2%	1	1%	Motivation, willingness, availability, job engagement, commitment, prevention & promotion focus
Norms & Attitudes	1	1%		0%		0%		0%	Theory of Reasoned Action
Organizational Facilitators (Policies, Culture and Governance Mechanisms)	10	12%	4	5%		0%	4	5%	Perceived organizational politics, Organizational facilitators, governance mechanisms, management practices, Turnover intention, Expected rewards & incentives & associations, Organizational climate, Mastery Climate, Stewardship, Structures, HRM Practices, Technology
Personality Traits	2	2%		0%		0%		0%	
Pscyhological distress	4	5%	2	2%	6	7%	1	1%	Employee Silence, Threat Appraisal, Emotional Exhaustion, Burnout, Morality, Alienation, Inferiority Complex
Psychological ownership	5	6%		0%	2	2%	2	2%	Power, psychological entitlement
Psychological safety	3	4%		0%	3	4%	2	2%	Safety, Psychological safety, Forgiveness, Psychological Capital
Relational (including relationship conflict and damage)	6	7%	2	2%	2	2%		0%	Relationship conflict, Relationship damage, Relational identification
Sector	1	1%		0%		0%	2	2%	Sector, Market characteristics, Job Mobility
Task and job related (nature, visibility, interdependence, and performance)	8	10%	15	19%	2	2%	6	7%	Task nature, visibility, design, interdependence and performance; Meaning, Individual Performance, Self-efficacy, Ambidexterity, Identification
Territorial Behaviors	1	1%		0%	1	1%		0%	
Trust	8	10%	3	4%	6	7%	2	2%	Trust, Distrust, Psychological Contract, Positive Affectivity

[1] Appendix A provides the literature rationales for the coding of found variables.

Table 5

Methodological choices found in KW research.

Design			
	Quantitative (Survey)	77%	69
	Qualitative (Interview)	9%	8
	Qualitative (Case Study)	6%	5
	Qualitative (fsQCA)	1%	1
	Quantitative (Quasi-experimental + Survey)	1%	1
	Conceptual work	7%	6
	Multimethods[1]	4%	3
	Total		**90**
Time horizon	Cross-sectional	96%	81
	Longitudinal	4%	3
	Total		**84**
Setting	National	84%	68
	International	16%	13
	Total		**84**

[1]Includes quantitative and qualitative research designs.

survey.

Results show a lower prevalence of qualitative research designs. Eight (9%) of the papers considered content analysis after conducting interviews, and the other five (6%) considered a case study design following an interpretivist philosophy. This is unsurprising given the understudied characteristics of KW (Strik et al., 2021) and KW-related constructs (Connelly et al., 2019) using qualitative approaches. Accordingly, 96% (81) of the research papers follow a cross-sectional approach considering the time horizon of the research design. There are only three longitudinal studies classified as such either by the authors or according to Scandura and Williams' criteria (2000).

Most of the addressed research uses national samples (85%), with only 15% (13) including international samples in design. Single-method designs are also prevalent (90.6%), with only 4% of the accounts opting for a multimethod approach aiming for results' triangulation or complementarity.

Regarding the scale and instruments used in KW research, the review shows that less discussed KW themes, such as knowledge sharing hostility (Husted et al., 2012; Woodfield & Husted, 2019) and knowledge contribution loafing (Sun et al., 2020), include scales developed by the research authors to address the phenomena at hand. A similar trend seems to occur when discussing knowledge hoarding, with one instance considering a single-item scale developed on the frequency of knowledge-hoarding behavior (Holten et al., 2016). In contrast, two articles use the same scale (Evans et al., 2015; Zhao & Xia, 2017), presenting a different theoretical background and research setting, leading to convergent results. The addressed knowledge-hiding research

commonly includes Connelly et al. (2012) knowledge-hiding scale in research design, with nine instances assessing the construct via distinct KW scales (Ali, Ali, Albort-Morant, & Leal-Rodríguez, 2021; Fatima, Abdul Ghaffar, Zakariya, Muhammad, & Sarwar, 2021; Ghani et al., 2020a; Khalid, Bashir, Khan, & Abbas, 2018; Muhammad & Sarwar, 2021; Nadeem, Liu, Ghani, Younis, & Xu, 2020; Singh, 2019; Tsay et al., 2014). Table 6 summarizes the used measures considering KW and KW-related constructs.

5. Discussion

Considering overall KW-related phenomena, most papers address the KW concept of knowledge hiding. Given the conceptual evolution of such a multidimensional construct (Connelly et al., 2012, 2014, 2019), we argue that the higher prevalence of research focused on this KW-related construct happens due to its conceptual development. Knowledge hoarding, while scarcer in the sample (7.7%), is also related to discussions of its robustness as a phenomenon (Evans et al., 2015; Holten et al., 2016; Trusson et al., 2017; Zhao & Xia, 2017). Nevertheless, the covered papers show several instances where overlapping constructs operate with linguistic differences – in particular between knowledge hiding and knowledge hoarding (Evans et al., 2015; Ford et al., 2015), and knowledge hiding and KW (Tsay et al., 2014; Pradhan, Srivastava, & Mishra, 2020; Fatima et al., 2021). For example, Evans et al. (2015) discuss knowledge hoarding as the intentional concealment of knowledge, even upon request. Such rationale, in turn, presents a clash of overlapping definitions commonly attributed to knowledge hiding (Connelly et al., 2012; Strik et al., 2021). Other positions on different KW-related constructs consider hostility toward sharing knowledge (Husted et al., 2012; Woodfield & Husted, 2019). Results also show no evidence of a specific agenda shaping or justifying the growth in KW-related phenomena in recent years. We argue, however, that the progressive awareness of individual-level and organizational-level consequences resulting from KW is driving the recent growth of empirical works – an argument reflected in the practical implications of most empirical works found in the sample.

Regardless of overlapping similarities, our results allow us to build on existing differences that support distinctive behavioral aspects among the identified KW-related constructs. Based on the reviewed literature, we propose a differentiation between KW-related constructs presenting four dimensions:

a) Individual motivation to protect existing knowledge (Ford et al., 2015; Peng, 2013; Sun et al., 2020),
b) individual behavioral intention to conceal knowledge (Connelly et al., 2012; Ford & Staples, 2008; Tian, Mao, Zhou, & Cao, 2021; Webster et al., 2008),
c) knowledge availability (Butt, Ahmad, & Shah, 2021; Ford & Staples, 2008; Oliveira et al., 2021)
d) Request to share knowledge with others (Miminoshvili & Černe, 2021; Oliveira et al., 2021).

Discussing our dimension proposal, evidence shows that knowledge disengagement is influenced by feelings of safety, social availability, and job engagement driven by the engagement theory (Ford et al., 2015). Similarly, knowledge contribution loafing (Sun et al., 2020) is related to similar feelings of safety influenced by leadership in organizations. Thus, whereas knowledge disengagement is a consequence of lower levels of engagement, knowledge contribution loafing acts as a behavioral response motivated by knowledge protection. A theoretical basis that also drives KW (Peng, 2013), knowledge hiding (Connelly et al., 2012), knowledge sharing hostility (Husted et al., 2012), and knowledge hoarding (Oliveira et al., 2021). Evidence also shows that the quasi-accidental nature of knowledge hoarding contrasts with the continuous withholding behavior behind knowledge hiding (Aljawarneh, Alomari, Alomari, & Taha, 2020; Connelly et al., 202). Therefore, knowledge hiding portrays a concealment behavior in circumstances where knowledge is requested from others; whereas knowledge hoarding acts as a concealment behavior driven by the protection of knowledge when others do not request knowledge (Oliveira et al., 2021; Strik et al., 2021). Finally, knowledge availability is related to KW-related constructs, namely knowledge disengagement (Ford et al., 2015) and knowledge hiding (Xiao & Cooke, 2019; Nguyen, Malik, & Budhwar, 2022). We argue that perceived threats related to a diminished level of available knowledge can motivate and further exacerbate several KW behaviors (Woodfield & Husted, 2019; Nguyen et al., 2022). However, in the case of knowledge disengagement, evidence suggests that individuals showing such behaviors do not share or actively withhold knowledge (Ford et al., 2015; Ford & Staples, 2008). The low level of engagement translates into a lack of intention to share knowledge with others, even when communication channels are available in organizations (Ford & Staples, 2008). Table 7 summarizes the proposed dimensions.

Regarding the proposal of a research plan, we identify the need for

Table 6
Used measures in KW research (n = 70)[1.]

Measures	KW related construct						*f*
	Knowledge Contribution Loafing	Knowledge disengagement	Knowledge Hiding	Knowledge Hoarding	Knowledge Sharing Hostility	Knowledge Withholding	
Developed by the authors	1 (1.4%)		1 (1.4%)	2 (2.8%)	1 (1.4%)	1 (1.4%)	6
Intra and Reciprocal Knowledge Hiding scale (Serenko & Bontis, 2016)			2 (2.8%)				2
Knowledge Disengagement Scale (Ford & Staples, 2008)		1 (1.4%)					1
Knowledge Hiding Scale (Connelly et al., 2012)			44 (62.8%)				44
Knowledge Hiding Scale (Rhee & Choi, 2017)			3 (4.2%)				3
Knowledge Hoarding Scale (Evans et al., 2015)				2 (2.8%)			2
Knowledge Withholding Intention Scale (Lin & Huang, 2010)						1 (1.4%)	1
Knowledge Withholding Scale (Peng, 2013)			8 (12.5%)			1 (1.4%)	9
Knowledge Withholding Scale (Tsay, 2014)						1 (1.4%)	1
Knowledge-withholding scale (Kidwell & Robbie, 2003)			1 (1.4%)				1

[1]Quantitative research papers with the inclusion of a qualitative research paper (fsQCA).

Table 7
Proposed dimensions of differentiation between KW constructs.

Dimension	Reference
Individual motivation to protect knowledge *vs.* No individual motivation to share knowledge	(Ford et al., 2015; Peng, 2013; Sun et al., 2020)
Intention to conceal knowledge *vs.* No intention to conceal knowledge	(Connelly et al., 2012; Ford & Staples, 2008; Tian et al., 2021; Webster et al., 2008)
Knowledge availability *vs.* Knowledge unavailability	(Butt et al., 2021; Ford & Staples, 2008 Oliveira et al., 2021)
Request to share knowledge *vs.* No request to share knowledge	(Miminoshvili & Černe, 2021; Oliveira et al., 2021).

clarity of language at both micro and macro levels when discussing KW phenomena. As a direct consequence of these sometimes-contrary views, boundaries, replication, and comparison of settings also remain unclear, which corroborates the previous discussion in the literature (cf. Xiao & Cooke, 2019; Strik et al., 2021). Furthermore, the scarcity of conceptual papers (Connelly et al., 2012; Connelly et al., 2019; Kang, 2016) is also a factor of conceptual attrition that should be considered in developing KW research.

Given the discussed variables, concerns over context and knowledge complexity are also proposed for future research directions. While organizational and national cultures are discussed, culture's overall importance is not individually assessed in the covered research, which presents an opportunity to understand its relationship with KW in more practical frameworks. Additionally, the common treatment of KW-related concepts as part of counterproductive knowledge behaviors seems to conduct conceptual and research papers toward negative outcomes. Thus, positively disruptive, innovative, and creative aspects acting as consequences of KW behaviors present a future research direction. Moreover, studies address industry setting differences, tenure (Issac, Baral, & Bednall, 2020), and small enterprises (Woodfield & Husted, 2019). However, comparisons among settings or international studies and their possible impacts on KW-related behaviors are scant.

The literature also presents scarce data hinting at possible symmetrical and asymmetrical variables leading to or resulting from KW (Abubakar et al., 2019). Considering this need for expanding on different research settings, an additional conjoint effort must be employed when studying KW concepts. Furthermore, the lack of moderation and mediation effects in the literature presents an additional quantitative research gap that can present a more detailed overview of such behavioral outputs.

Lastly, still related to the contextual research gaps, while explicit and tacit knowledge differences are mentioned (Hernaus, Cerne, Connelly, Poloski Vokic, & Škerlavaj, 2019; Peng, 2013; Serenko & Bontis, 2016), this work finds no exploratory or confirmatory research leading to its differences in KW related behavior. And while conceptual lenses grounded in social and organizational psychology are discussed as rationales, the integration of knowledge management frameworks remains unexplored. This articulation also presents a future research direction, given the common theoretical background they share.

Finally, we propose future research directions considering the methodological practices in KW research. Fig. 6 presents quantitative research proposals for future research, and Fig. 7 present qualitative research proposals for qualitative research. It seems that qualitative and multimethod design choices are still uncommon. Given the complex nuances of knowledge, future research might benefit from more research inputs based on several qualitative methodologies, such as interpretivist or grounded theory-driven. Given the need for theory sophistication behind KW-related constructs (Strik et al., 2021), we recommend using several exploratory qualitative tools that could further support conceptual knowledge of KW behaviors. Similarly, more focus should be given to longitudinal designs to further explore the proposed antecedents and consequents and time-related effects on KW.

6. Conclusions

The proposed focus on conceptual and theoretical aspects and operational and methodological questions to convey a portrait of the KW agenda led to a three-fold contribution.

The first contribution lies in the conceptual clarification of KW-related phenomena, providing insight into blurred perspectives. We extensively analyze theoretical drivers, antecedents, and consequences driving counterproductive knowledge behaviors. The main findings provided hints for developing a dimension system (Table 7) that could further shape empirical and conceptual work. Therefore, we challenge
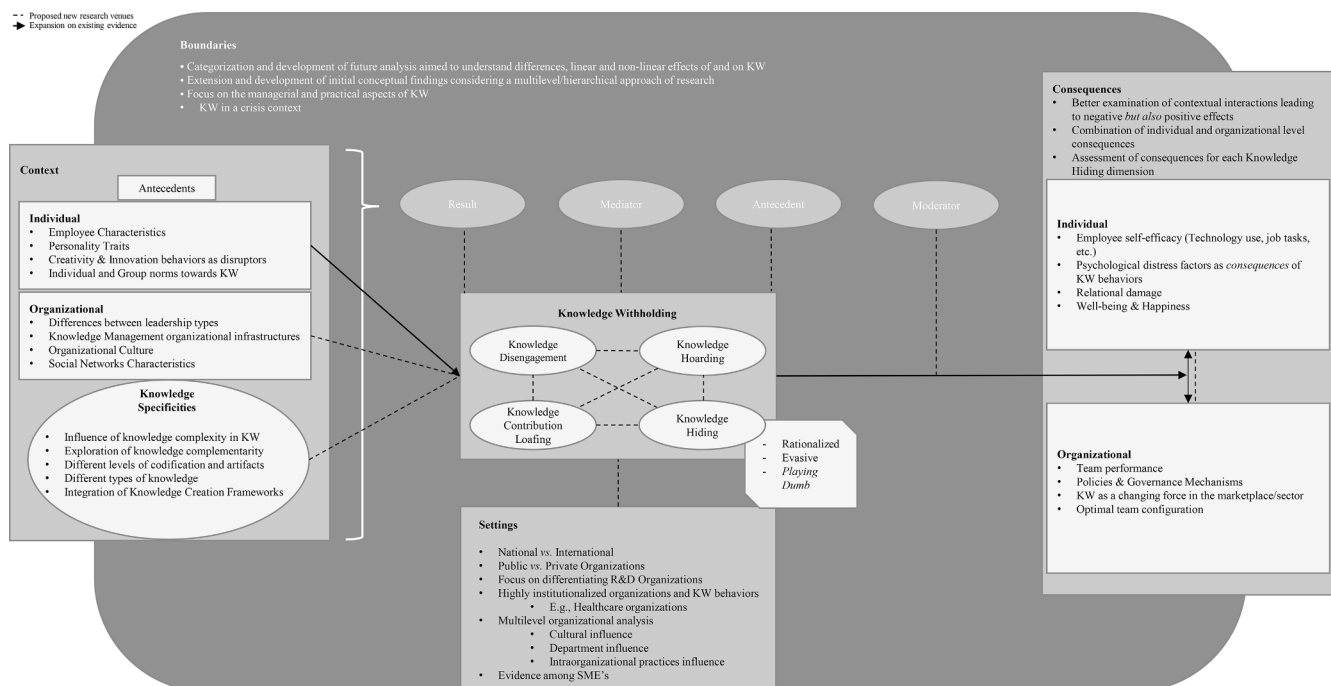
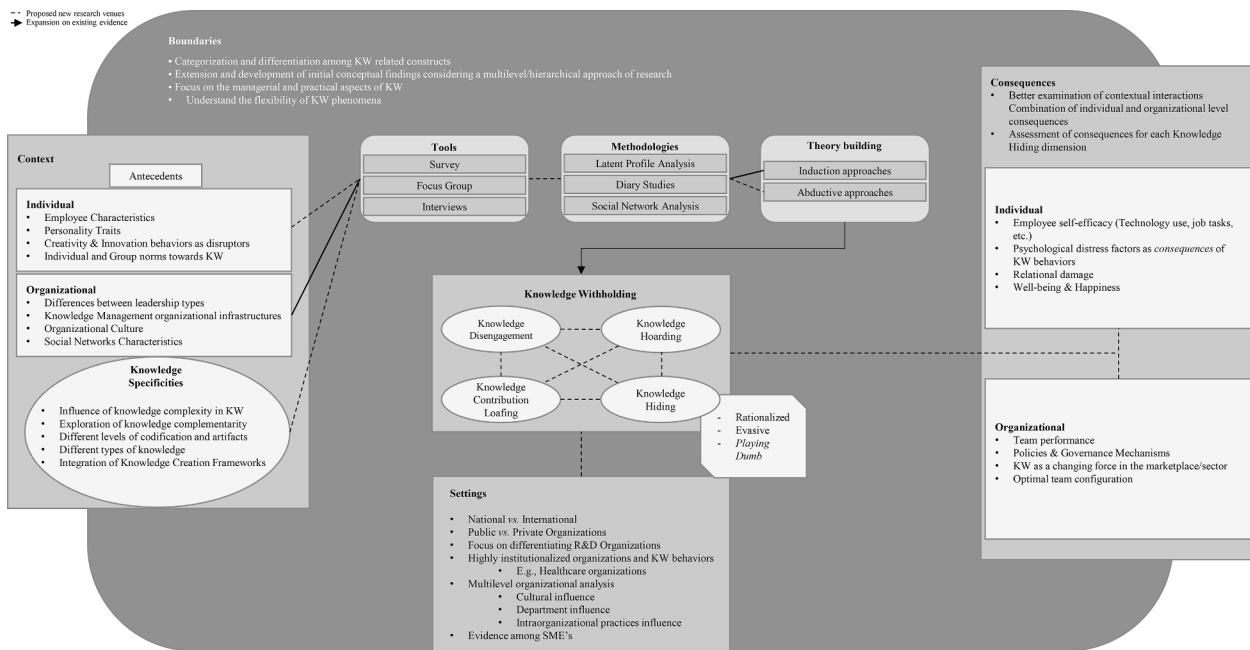**Fig. 6.** Recommendations for future quantitative research.

Fig. 7. Recommendations for future qualitative research.

future research to be developed using the dimensions of differentiation we propose. The existence of motivation (or lack of motivation) to withhold knowledge, the deliberate intention to conceal *versus* the lack of intention to withhold knowledge, the degree of availability of knowledge in the organization, and the existence of a deliberate request for knowledge to be shared present distinguished patterns that help the development of KW related research.

A second contribution relies on the identification of methodological gaps surrounding KW research. There is a prevalence of research using quantitative cross-sectional designs (Table 5). Given the relative emergence of KW-related phenomena, it is surprising that there is a lack of qualitative research designs. Therefore, our work provides an overview of methodological gaps that future research can develop. We invite fellow researchers to conduct qualitative research bounded by pragmatic, inductive, and constructivist rationales to ensure a richness of data limited by quantitative approaches alone. Similarly, we suggest that future empirical and conceptual work should assess the role of culture in KW, given the lack of work about national samples.

Lastly, we provide insight into the multiple theoretical perspectives driving KW's conceptual and empirical work. The continuous blurred treatment of KW-related constructs advises caution on what to avoid in future research. Thus, our systematic literature review provides a blueprint of research tendencies, and future directions are given, aiming for the sustainable development of a novelty topic in the literature.

Our findings also show numerous research patterns and gaps that we expand on as the main contributions of our systematic review. We offer a refined research picture of the current literature on KW over the last two decades. As a result, our study provides several insights that contribute to future conceptual and empirical works.

Regarding academic implications, our work identifies research gaps in KW research and clarifies KW behavior dimensions. Our results show that recent research still presents overlapping perspectives at the conceptual level. Our results clarify the theoretical complexity by presenting and discussing categories that differentiate the KW-related constructs. We provide structured insight into recent behavioral phenomena from knowledge management theory, proposing four dimensions of differentiation among KW phenomena. Concerning the level of analysis of KW-related constructs, we explore antecedents and consequences of KW-related constructs given their individual and organizational level of influence.

Furthermore, we analyze and discuss methodological choices driving KW work. Such an approach allowed for the proposition of two separate frameworks considering future quantitative and qualitative research. We argue that a stream of research should focus on several contextual factors and knowledge specificities, given the growing maturity of KM structures in organizations.

Similarly, we deliver managerial implications since understanding different KW-related constructs also prove useful for managers to support them in differentiating and acting upon desirable KW behaviors and avoiding adverse ones. Managers and policymakers benefit from a structured research map (structured at both individual and organizational levels) that hints at managerial practices to counter the negative outcomes of KW practices.

Considering our current social, organizational, and political environment, this counterproductive knowledge behavior poses a critical subject of research that should be developed in managerial research. However, the fast growth of this multidisciplinary construct provides a complex picture that remains conceptually cloudy. Our research aims to clarify KW-related concepts, critically assessing the current research agenda and providing a theoretical and practical overview of current trends. We believe we offer insight that will invite and guide future theoretical and practical contributions to KW as a subject.

7. Limitations

Our work conducts a systematic literature review, including a content analysis (Post et al., 2020) that offers significate advantages for the scientific development (Bernerth & Aguinis, 2016; Duriau et al., 2007; Williams et al., 2021) of KW research. Nevertheless, our research has some shortcomings. First, given the time and resource limitations, a further discussion over the agreeableness of the coding system with other fellow peers besides the authors was not possible. Moreover, we dealt with multiple focal points in some of the considered research papers in the sample, constituting a challenge. Our strict and demanding focus may have hyper-focused the research scope and led to the exclusion of other relevant papers. Given the demanding research protocol we follow, only published papers from Q1 and Q2 journals with an *h-index* higher than 30 are considered. Therefore, the small sample may derive from the review protocol's decisions.

Furthermore, multidisciplinary studies were not considered in the

reviewing process, given the specificities of our research protocol. Lastly, given the novelty of KW research, the small sample size may justify possible precocious conclusions. However, our work reflects on the early stage of KW research and conveys a comprehensive analytical framework upon which future research can be developed.

Funding

CRediT authorship contribution statement

Tiago Gonçalves: Validation, Methodology, Investigation, Formal analysis, Conceptualization, Data curation, Funding acquisition, Software, Writing - original draft, Writing - review & editing. **Carla Curado:** Validation, Supervision, Visualization, Writing - review & editing. **Mírian Oliveira:** Validation, Visualization, Writing - review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Coding sources

Codes	Coding sources
Task and job related (nature, visibility, interdependence and Performance)	(Brief & Aldag, 1977; Hackman & Oldham, 1976; Shin & Grant, 2019; Staw, Calder, Hess, & Sandelands, 1980)
Criativity and Innovation	(Amabile & Pratt, 2016)
Trust	(Marineau, 2017; Rousseau, Sitkin, Burt, & Camerer, 1998)
Organizational Facilitators (Policies, Culture and Governance Mechanisms)	(Loebbecke, Van Fenema, & Powell, 2016; Pittino, Martínez, Chirico, & Galván, 2018)
Employee Characteristics	Coding directly from the review analysis (authors)
Justice	(Greenberg, 1987; Cohen-Charash & Spector, 2001)
Relational (including relationship conflict and damage)	(Mikkelsen & Clegg, 2019)
Leadership (Types, Relationship and Exchange)	Coding directly from the review analysis (authors)
Motivation and engagement	(Martin, Ginns, & Papworth, 2017)
Psychological safety	(Frazier, Fainshmidt, Klinger, Pezeshkan, & Vracheva, 2017)
Psychological distress	(Bari, Ghaffar, & Ahmad, 2020)
Aggression	Coding directly from the review analysis (authors)
Career insecurity	(Wu et al., 2018)
Psychological ownership	(Peng, 2013)
Personality Traits	Coding directly from the review analysis (authors)
Territorial Behaviors	Coding directly from the review analysis (authors)
Confidence	Coding directly from the review analysis (authors)
Knowledge reciprocity	(Kankanhalli, Tan, & Wei, 2005)
Emotion	(Fredrickson, 2001)
Generational gap between peers	Coding directly from the review analysis (authors)
Communication	(Leonardi & Meyer, 2015)
Norms & Attitudes	(Azjen, 1991)
Sector	Coding directly from the review analysis (authors)
Methodological options	Coding sources
Research Type (R = Research; C = Conceptual)	(Scandura & Williams, 2000)
Longitudinal (1 = Yes; 0 = No)	(Scandura & Williams, 2000)
Setting	Defined by the authors according to sample
Scope (1 = International; 0 = National)	Defined by the authors according to sample
Research Design (Quant(S) = Quantitative survey; Quant (QE + S) = Quantitative quasi experimental + interview; Qual(I) = Qualitative interview; Qual (CS) = Qualitative Case Study); Qual (fsQCA) = Qualitative comparative analysis	(Scandura & Williams, 2000)
Multimethods	(Johnson & Onwuegbuzie, 2004)

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