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Cognitive Continuum Theory: Can it contribute to the examination of confidentiality and risk-actuated disclosure decisions of nurses practising in mental health?

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Abstract

Nurses practising in mental health are faced with challenging decisions concerning confidentiality if a patient is deemed a potential risk to self or others, because releasing pertinent information pertaining to the patient may be necessary to circumvent harm. However, decisions to withhold or disclose confidential information that are inappropriately made may lead to adverse outcomes for stakeholders, including nurses and their patients. Nonetheless, there is a dearth of contemporary research literature to advise nurses in these circumstances. Cognitive Continuum Theory presents a single-system intuitive-analytical approach to examining and understanding nurse cognition, analogous to the recommended single-system approach to decision-making in mental health known as structured clinical judgement. Both approaches incorporate cognitive poles of wholly intuition and analysis and a dynamic continuum characterised by a 'common sense' blending of intuitive and analytical cognition, whereby cues presented to a decision-maker for judgement tasks are weighed and assessed for relevance. Furthermore, Cognitive Continuum Theory promotes the importance of determining pattern recognition and functional relations strategies, which can be used to understand the operationalisation of nurse cognition.

Keywords

Cognitive Continuum Theory, quasirationality, structured clinical judgement, risk assessment, nursing, psychiatric, mental health, confidentiality

Introduction

Confidentiality for nurses (and for all clinicians handling patient information) is the duty that comes about when information has been shared by a patient on the condition the information will not be communicated further without their consent (Griffith, 2007). The duty of confidentiality is of particular importance in mental health care, because there is a persistent stigma pertaining to a mental health condition amongst the public (Wand, 2012). Therefore, disclosure of sensitive confidential health information by nurses working in mental health has the potential to give rise to negative social consequences for patients (Barloon & Hilliard, 2016). Furthermore, patients may be unwilling to share their information thereafter if they believe it may be released to others without their consent (Kämpf & McSherry, 2006). There may also be legal or (more commonly) professional ramifications for a nurse, or legal issues for the health service in which the nurse is operating, if confidentiality is breached (Conlon et al., 2021).

However, in cases where patient consent or a legally-backed duty to disclose is not available, nurses face difficult decisions regarding confidentiality if a patient is deemed a potential risk to self or others (Conlon et al., 2019). There is a public interest in safeguarding confidentiality to ensure patients are willing to share their personal health information with nurses, but there is an opposing public interest in disclosure of pertinent information to protect patients or others from harm (Conlon et al., 2019; Kämpf & McSherry, 2006; McHale, 2009). Nurses are often the first clinician to make contact with a patient engaging in mental health services, so may be the first clinician to recognise when disclosure of confidential information is recommended (Conlon et al., 2019).

Decision-making for nurses in this context is complex. Therefore, education and training would be of benefit but there is a dearth of contemporary research literature to assist nurses

practising in these circumstances. Consequently, it is uncertain how nurses conceptualise risk, comprehend the concept of 'public interest', understand rules of confidentiality, or balance competing public interests, before withholding or disclosing confidential information pertaining to a patient (Conlon et al., 2019). Investigative studies that address these uncertainties would be of benefit to both nurses and their patients, and may also assist other mental health clinicians faced with similar decisions (Conlon et al., 2019, 2021).

Cognitive Continuum Theory (CCT) supports a dynamic single-system framework of intuitive-analytical cognition that has informed a number of studies in general nursing, but few CCT guided studies have examined decision-making processes of nurses practising in mental health (Bjørk & Hamilton, 2011; Dowding et al., 2009; Lauri et al., 2001). Notably, contemporary literature holds nurse decisions in mental health in the context of risk are best made using a dynamic single-system intuitive-actuarial framework known as structured clinical judgement (Conlon et al., 2019). Therefore, this theoretical review paper considers the suitability of CCT to examine decision-making processes of nurses practising in mental health in these circumstances.

Historical background to CCT

CCT originated in the United States through the work of Kenneth Hammond (1917-2015) who used Social Judgement Theory to build upon psychologist Egon Brunswik's (1903-1955) Probabilistic Functionalism Theory before proposing CCT (Dhami & Mumpower, 2018; Dhami & Thomson, 2012; Hammond, 1980).

Probabilistic Functionalism Theory seeks to explain how organisms function in their environments (Brunswik, 1956; Goldstein, 2004). The theory is one of perception and suggests that decision-makers are confronted with complex and potentially inconstant environments they

must perceive accurately to act effectively (Brunswik, 1956; Dhami & Mumpower, 2018; Goldstein, 2004). Brunswik proposed that every environment and organism (including humans) are comprised of overt (obvious) areas, and covert (hidden) areas. These properties of organisms and environments can be categorised as variables that are either distal, proximal, peripheral, or central (Brunswik, 1956; Goldstein, 2004).

Distal variables of environments are viewed as 'covert characteristics' that must be discerned centrally by a decision-maker to be understood but can never be known with certainty. Therefore, it is information laden proximal variables (cues) presented by an environment and received by sensory receptors of an organism that are perceived by the organism to understand the environment, and subsequently relied upon to guide ensuing action (Brunswik, 1956; Goldstein, 2004).

Notably, not every possible cue (or partial cue) will be accessible to a particular organism at a given time, whilst those that are accessible will vary in degrees of relevance (Goldstein, 2004). Consequently, the correlation in validity between distal variables and accessible cues available to an organism (described by Brunswik as the 'ecological texture' of the environment) should be determined to ascertain their relevance (Brunswik, 1956; Goldstein, 2004). The level of accuracy of an organism in assessing and acting upon accessible cues is measurable to the extent it matches the ecological texture of the environment (Goldstein, 2004).

Insights drawn from Probabilistic Functionalism Theory were applied by Hammond in research using Social Judgement Theory (Doherty & Kurz, 1996). In doing so Hammond took Brunswik's principles regarding perception and applied them to human judgement, to explain how people undertaking judgement related tasks (such as decision-making) learn to achieve and agree (Dhami & Mumpower, 2018). Furthermore, Social judgement Theory adheres to Brunswik's

assertion that it is impossible for an organism to know their environment with certitude, meaning the relationship between people and an environment can only ever be described in probabilistic rather than absolute terms (Doherty & Kurz, 1996).

Hammond used Social Judgement Theory to examine differences in clinicians' assessments of clinical data and their resultant socially motivated judgement backed decisions. Notably, demonstrating that clinicians were not only users of decision-making strategies and instruments, but were themselves instruments whose judgement processes could be measured and ascribed using a probability model (Dhami & Mumpower, 2018; Goldstein, 2004). Hammond's research on decision-making led to the subsequent development of what became known as CCT (Hammond, 1980, 1981).

Cognitive Continuum Theory

There are five premises that underpin the operation of CCT. Firstly, the theory proposes cognition appears on a continuum that ranges from wholly intuitive at one pole, to wholly analytical at the other. Secondly, the area between these poles is comprised of various combinations of intuition and analysis known as quasirationality. Thirdly, cognitive tasks can be positioned on a task continuum corresponding to the cognitive continuum. Fourthly, the cognitive processes of a decision-maker are not static and can oscillate over and back across the cognitive continuum. Fifthly, functional relations and pattern recognition are capabilities of a decision-maker when assessing environmental cues (Hammond, 1996). A brief overview of each premise is now provided.

Cognition on a continuum

The first premise of CCT is cognition, which can be ascribed as appearing at any point on a continuum that ranges from wholly intuitive at one pole to wholly analytical at the other (Hammond, 1980). This principal assumption that cognition is a single process system represented a major shift in decision-making theory, because it countered prevailing dichotomous dual-process system theories that hold intuition and analysis in opposition to one another (Bjørk & Hamilton, 2011; Dhami & Thomson, 2012; Hammond, 1980, 1981).

System 1 of the dual-process dichotomy absorbed into CCT refers to intuitive processes, which are typically viewed as automatic, associative, rapid, and holistic, with a low cognitive demand (Dhami & Thomson, 2012; Hammond, 1996). Considered part of natural evolutionary processes, intuition is the process whereby experience and knowledge is converted to new learning (Dhami & Thomson, 2012). Conversely, System 2 of the dichotomy absorbed into CCT refers to analytical processes, viewed by decision-making theorists as a rules-based systematic approach. Analytical decision-making is generally characterised as a slow, methodical, prescriptive method, using formalised steps taught to decision-makers that emphasise logic and critical thinking (Bjørk & Hamilton, 2011; Dhami & Thomson, 2012; Hammond, 1996; Parker-Tomlin et al., 2017).

Common-sense reasoning

The second premise of CCT is the area between the poles of the continuum is comprised of various blends of intuition and analysis known as '*quasi'*-rationality, with the proportion of each ascending in proximity to its corresponding pole (Cader et al., 2005; Lauri & Salanterä, 2002). Quasirational cognition is not arbitrarily bound to wholly intuition or analysis, but instead uses the best available combination of the two for decision-making (Brunswik, 1956; Dhami & Thomson,

2012). For CCT, Hammond wrote "[a]nalysis provides precision; intuition provides robustness; quasirationality offers something of both" (Hammond, 1996, p. 180). Therefore, quasirationality can be described as a form of cognitive reasoning better known to the layperson as 'common sense' (Hammond, 1980; Hammond, 1996).

Hammond proposed quasirational cognition to be the most frequent and efficacious form of cognition, whilst wholly intuitive or analytical cognition is rare (Dhami & Thomson, 2012; Hammond et al., 1983; Hammond, 1980). Therefore, most decision-making is a dynamic interplay between intuition and analysis, depending on which combination best suits a particular decision (Bjørk & Hamilton, 2011; Hammond, 1996). Notably, cognition located closer to the intuitive pole is associated with experienced decision-makers, whilst cognition located closer to the analytical pole is associated with inexperienced decision-makers (Bjørk & Hamilton, 2011; Hammond, 1996; Lauri & Salanterä, 2002)

Cognitive tasks and modes of inquiry

The third premise of CCT is cognitive tasks can be arranged on a task continuum, corresponding to the cognitive continuum (Dhami & Thomson, 2012). Cognitive tasks are understood as comprising accessible cues presented by an environment containing information that requires cognition to be processed and assessed for relevance (Hammond, 1981). These tasks have three principal operational characteristics: "complexity of task structure; ambiguity of task content; and form of task presentation" (Hammond, 1986, p. 30). It is these properties predicated on underlying cues that will induce either intuitive, analytical, or quasirational organising principles (Dhami & Thomson, 2012; Hammond, 1980, 1981). Ill-structured tasks involving uncertainty and many conflicting or questionable cues tend to correlate with the intuitive pole,

whilst well-structured tasks involving certainty and a small number of relevant cues are more often associated with the analytical pole (See Table 1) (Cader et al., 2005; Doherty & Kurz, 1996; Dunwoody et al., 2000).

These organising principles are further arranged into six modes of (cognitive) inquiry (see Table 2) corresponding to defined intuitive-analytical cognitive reasoning strategies of the cognitive continuum, that direct the arrangement of cognitive tasks along the task continuum (Dhami & Thomson, 2012; Hammond, 1996). Functional validity (satisfactory achievement) is more likely when the characteristics of a cognitive task match the mode of inquiry used for the task (Bjørk & Hamilton, 2011; Dhami & Mumpower, 2018; Hammond et al., 1983; Hammond, 2007).

Oscillation

The fourth premise of CCT is cognitive processes are not static. When time permits the mode of inquiry used may change as a decision-maker moves over and back along the cognitive continuum, in response to the specific combination of intuitive and analytical cognition required to complete a cognitive task. A process Hammond referred to as oscillation (Cader et al., 2005; Hammond, 1996). Successful performance of a cognitive task inhibits movement along the continuum, whilst failure stimulates it (Dhami & Mumpower, 2018; Doherty & Kurz, 1996; Hammond, 1980). Consequently, cognitive tasks are also conceived as being responsive and dynamic, continuously oscillating along the task continuum according to the mode of inquiry required for completion (Bjørk & Hamilton, 2011; Hammond, 1996).

Notably, oscillation towards the slower-paced analytical pole may be pertinent should time permit, to enhance performance accuracy of cognitive tasks activated by intuition. Conversely,

oscillation towards the faster-paced intuitive pole is potentially more appropriate in time poor scenarios for the performance of cognitive tasks activated by analysis (Hammond, 1981; Hammond, 1986). Oscillation also provides a means to measure cognitive responsiveness to task requirements, and in doing so draw comparisons between decision-makers or classes of decision-makers such as experienced versus inexperienced nurses (Hammond, 1996).

Functional relations and pattern recognition

The fifth premise of CCT is decision-makers have the capacity to seek functional relations and recognise patterns in their environment (Hammond, 1996; Standing, 2008). Functional relations refers to the impact of an independent variable (an area of an environment hidden from view) on a dependent variable (accessible cues) and the ability of a decision-maker to discern and act appropriately on these relationships. Pattern recognition refers to inferences made from the experientiality-facilitated recognition of patterns of information, to reach conclusions regarding accessible cues (Hammond, 1996).

Functional relations and pattern recognition are underpinned by two metatheories of truth, which are used to determine the calibre of judgements (Dhami & Mumpower, 2018). Coherence metatheory is associated with functional relations and focusses on rational and consistent process. It is decision-making based on defensible logic and mathematical formulas, that may or may not lead to an accurate judgement. Correspondence metatheory is associated with pattern recognition and focusses on the empirical accuracy of judgements, in preference to the rationality of the steps taken to make a judgement (Custers, 2019; Hammond, 1996). A decision-maker can engage in either correspondence or coherence but not at the same time (Hammond, 1996). Nonetheless, a total dichotomous switch from reliance on one to the other is possible and is referred to as

alternation (Cader et al., 2005; Hammond, 1996). Notably, coherence and correspondence are not bound solely to intuition or analysis and a decision-maker may use either or both forms of cognition with these metatheories (Custers, 2019).

Shortcomings of CCT

CCT, as with any theory, is subject to a number of shortcomings. Firstly, the prevalence of dichotomous decision-making theories in nursing research and nurses' familiarity with these theories, means CCT may present as a complex theory that requires education for researchers and consumers of research to understand (Cader et al., 2005). In the absence of understanding, it is reasonable to conclude CCT or findings from CCT based research may be misunderstood or misapplied.

Secondly, irrespective of a researcher's knowledge regarding CCT, the theory does not outline the number or type of task properties that drive a switch from one mode of inquiry to another. This may make it difficult for researchers to decide when a decision-maker has moved between modes (Dhami & Thomson, 2012; Parker-Tomlin et al., 2017). Difficulties identifying when a modal switch has occurred may influence researchers to concentrate on the poles of CCT and ignore the quasirational elements of decision-making (Parker-Tomlin et al., 2017).

Thirdly, a focus on cognition risks researchers not applying sufficient weight to potentially relevant elements such as sociological, emotional, ethical, or other comparable considerations that may impact on nurse decision-making (Chaffey et al., 2010; Melin-Johansson et al., 2017; Miller & Hill, 2018). For example, a nurse may be fatigued by their working conditions and make a poor decision, rather than the best decision possible in that instance (Wolf et al., 2017). The culture of a workplace may also lead a nurse to make a decision that is in keeping with their perception of

what is expected by their workplace, rather than a decision they may have otherwise made (Nibbelink & Brewer, 2018). Personal thinking style may also influence the mode of cognition applied to a task, at least in the initial phase of consideration (Dhami & Thomson, 2012).

However, the shortcomings of CCT outlined above can be limited or negated with the collection of rich qualitative data, that affords researchers a means to understand and elucidate the operationalisation of principles of CCT and other nurse decision-making processes (Dunwoody et al., 2000). A range of research using CCT is now outlined .

How CCT has been used to inform research

CCT has been used to guide studies of decision-making in various contexts (Chaffey et al., 2010; Dunwoody et al., 2000; Molinaro & Bolton, 2019). A number of studies have focused on nursing, but few (if any) of these have examined nurses working in mental health (Bjørk & Hamilton, 2011; Dowding et al., 2009; Lauri et al., 2001).

An early study by Dunwoody et al. (2000) tested university students' threat identification judgement processes. Participants were found to tend towards analysis when judgements tasks were complex. The researchers found predominantly analytical cognition for quantitative tasks led to more accurate outcomes. However, there was a noted satisficing in the balancing of accuracy versus effort, whereby intuition was pragmatically preferred for analysis inducing tasks of low complexity. The researchers also noted cues were weighed evenly for relevance by participants when intuition was preferenced, despite some cues being of uneven weight. However, errors made when using analytical cognition were greater than errors made when using intuition. The researchers also noted the form in which information was presented influenced cognition, with iconic information inducing intuition whilst numeric information induced analysis (Dunwoody et

al., 2000). The researchers concluded CCT is a suitable theory to examine decision-making but advise it is essential to elicit qualitative aspects of an individual's decision-making processes, to understand why a specific type of cognition has been used if initial findings appear incongruent with CCT (Dunwoody et al., 2000).

A recent study by Molinaro and Bolton (2019) used CCT to examine phishing victimisation. The researchers found participants use intuition and analysis when judging emails for authenticity. However, participants who used a higher proportion of analytical versus intuitive cognition uniformly scored higher on phishing recognition, leading to the conclusion that phishing recognition is an analytical process. Furthermore, reinforcing Hammond's position that task characteristics must match the mode of cognition required for a task to ensure satisfactory achievement. The researchers concluded interfaces designed to promote analytical cognition can assist decision makers with phishing recognition. The researchers also recommended strategies be used to identify users who deferred to intuition where analysis is preferred, for training and direction to become more pro-actively analytical in their processes (Molinaro & Bolton, 2019).

A study of occupational therapists practising in mental health used CCT to describe their perceived use of intuition (Chaffey et al., 2010). The researchers found participants understood intuition as knowledge arising outside of their conscious awareness. Furthermore, intuition was perceived to be influenced by professional experience, with emotional intelligence deemed necessary to process the impact of personal feelings on decision-making. The researchers determined intuition arises in conjunction with analysis for clinical reasoning, and both forms of cognition require consideration. Importantly for risk related scenarios in high-energy environments, the ability to use intuition appropriately was reported by participants to be negatively impacted by both stress and fatigue (Chaffey et al., 2010).

An international study of five jurisdictions across Europe (Finland, Sweden, and Switzerland) and North America (Canada, and the United States) examined nurses' cognition when making decisions (Lauri et al., 2001). The study strengthened the notion of quasirationality as fundamental to decision-making, with intuition and analysis prevalent in the planning stages of care. Nonetheless, nurses were found to prioritise analytical cognition for information collection and, defining problems, whilst intuitive cognitive was prioritised when implementing, and evaluating care. A positive association was also demonstrated between a nurse's increasing level of education and experience and use of intuitive cognition. However, analytical cognition was observed of nurses practising in long-term care irrespective of length of experience, whilst intuition was more common in short-term care. Relatedly, long-term care was also associated with lower levels of education (Lauri et al., 2001).

A study conducted by Dowding et al. (2009) used CCT to examine how nurses make decisions related to medication titration and palliative care in heart failure patients. The researchers corroborated successful decision-making is predicated on effective correlations between task properties and the mode of cognition utilised by a decision-maker. The researchers also found participants veered towards analysis in a controlled and non-urgent scenario (palliative care). However, misinterpretations in analysis based on informal guidelines or social guidance of peers could lead to incorrect judgements. Errors were also found in the outcome of decisions made, if intuition was used where analysis was required. Well-structured frameworks for analysis were proposed to correct this issue and assist nurses to make informed decisions, by facilitating oscillation along the continuum if a cognitive task requires an analytically dominant mode of inquiry (Dowding et al., 2009).

Bjørk and Hamilton (2011) examined nurses' perception of their cognition when admitting an elective patient, an undertaking characterised by well-structured cognitive tasks that are not time pressured. Cognition was reported to be closer to the intuitive pole for data processing; and closer to the analytical pole for data-collection, implementation, and evaluation. The study found nurses report oscillating between intuition and analysis for well-structured tasks that are not time pressured, perceiving their cognition to be mostly quasirational albeit spending more time closer to the analytical pole. Notably, participants reported some tasks were found to solely use cognition at the analytical pole, whilst no cognition was perceived as taking place solely at the intuitive pole (Bjørk & Hamilton, 2011).

Relevance of CCT to research regarding nurse decisions in mental health

There is a dearth of research literature regarding decision-making processes of nurses practising in mental health, concerning confidentiality and disclosure in the context of risk (Conlon et al., 2019). Therefore, further research would be beneficial in guiding nurse decision-making and CCT is a suitable theory to examine and describe how nurses operate in these circumstances.

Decisions related to the assessment and management of risk in mental health (including those for confidentiality and disclosure) are made using unstructured clinical judgement, actuarial approaches, or structured clinical judgement (Conlon et al., 2019). Unstructured clinical judgement refers to intuition led strategies based on experience, consistent with the intuitive pole of CCT. Actuarial approaches refers to the weighing and balancing of statistically significant empirically derived static indicators of risk, consistent with the analytical pole of CCT (Conlon et al., 2019; Hammond, 1980).

Inexperienced nurses tend to use slower-paced systematic logically-defensible analytically-dominant actuarial approaches, which are considered superior to intuition in predicting risk (Griffith et al., 2013; Miller & Hill, 2018; Sands, 2009). Nonetheless, static actuarial approaches have no utility in ongoing risk management because risk is dynamic and continually moves over and back along a continuum of no apparent risk to a credible potential for harm (Conlon et al., 2021; Griffith et al., 2013; Sands, 2009). Conversely, experienced nurses tend to prefer faster-paced intuition dominant strategies, which are also appropriate for risk management (Conlon et al., 2019). However, intuition is considered less accurate in assessing risk because there is a tendency to focalise on dramatic or impactful cues that may not represent risk in many patients (Higgins et al., 2016; Miller & Hill, 2018).

Structured clinical judgement refers to a single-process system of cognition that supports a "continuum of objective actuarial approaches to subjective clinical intuition that underpins mental health nurses' decision-making" (Conlon et al., 2019, p. 1243). For structured clinical judgement, the experientially-led discretion of nurses is applied to actuarial determinants of risk to create a dynamic CCT-analogous quasirational and oscillatory approach to risk assessment and management (Conlon et al., 2019; Griffith et al., 2013). Structured clinical judgement is considered a common-sense approach to decision-making that outperforms unstructured clinical judgement. Furthermore, it is comparable to actuarial approaches in assessing risk because it maximises the positive aspects and minimises the shortcomings of each (Faay et al., 2013; Griffith et al., 2013; Murphy et al., 2011; Sands, 2009). Consequently, structured clinical judgement is the recommended preferred method for risk assessment and management decisions of nurses practising in mental health (Conlon et al., 2019).

Crucially, decisions made in the context of risk are often time pressured, to promote a maximum reduction of the potential for harm to self or others (Conlon et al, 2019; 2021). Environmental pressures for rapid decision-making promote intuitive-dominant strategies, whereby nurses defer to their experience to make rapid informed decisions. Conversely, environmental pressures for accuracy (a necessity in risk prevention) promote analytical-dominant approaches (Hammond, 1981; Hammond, 1986). For accuracy, nurses focus on professional and organisational rules and regulations, which limits the scope of nurse-guided intuitive decision-making and adds to cognitive decision-making load (Gordon et al, 2015; Hagbaghery et al, 2004).

Nonetheless, risk is notoriously difficult to identify, and the validity of determinations of risk may be no better than chance (Caterino et al., 2013; Conlon et al., 2021). However, public interest decisions of nurses on confidentiality and disclosure pertaining to potential harm are predicated on a valid determination of risk (Conlon et al., 2019). Therefore, it is of pertinence to nurses that CCT indicates environments possess the ability to convey uncertain information linearly or non-linearly by way of a variety of relevant or redundant cues (or partial cues) in a process termed vicarious mediation (Dhami & Mumpower, 2018; Hammond, 1981, 2007). Nurses have the capacity to process these cues (whilst removing fallible cues) using the relevant operating principle in which information is arranged in the environment to create a coherent understanding of a patient's risk profile and initiate subsequent action (Buckingham et al., 2008; Hammond, 1981; Hammond, 1996). Understanding and subsequent knowledge of a decision-maker is maximised when the same analysis-inducing organising principle of the environment is used to arrange information obtained from cues. However, a high degree of knowledge may be possible even when a substitute organising principle is used, which may take the form of an intuition-

induced weighed averaging procedure for cues in the absence of a suitable alternative principle (Dhami & Mumpower, 2018; Hammond, 1986).

According to CCT this "multiplicity, flexibility, intersubstitutability, and combination" of cues and organising principles is termed vicarious functioning (Brunswik, 1956; Goldstein, 2004, p. 41; Hammond, 1981). Vicarious functioning allows nurses who appropriately take this approach to establish the ecological texture of the environment. Therefore, establishing the empirically derived validity of risk-related cues relating to distal patient variables (true cue validity), and discerning supporting interrelationships between cues, to promote satisfactory achievement in their risk-related decision-making (Goldstein, 2004; Hammond, 1981). Furthermore, in reacting to accessible cues, nurse judgements are analytical, systematic and logical, whilst being subject to existing knowledge and experience to ensure valid patient outcomes (Conlon et al., 2019). Therefore, functional relations and pattern recognition would be expected to play a part in nurse decision-making (Hammond, 1996).

Decision-making on confidentiality and disclosure in the context of risk is patently complex. Furthermore, nurses are human actors, and are subject to overt and covert sociological, cultural, ethical, emotional, and other human-centric influences that complicate CCT guided examinations of nurse decision-making (Goethals et al., 2010; Hagbaghery et al, 2004; Nibbelink & Brewer, 2018; Lopez, 2009). Notably, issues may arise for nurses should these extrinsic or intrinsic factors influence decision-making to the extent outcomes are not beneficial for stakeholders (Fry & MacGregor, 2014; Willmott et al., 2020). Consequently, the collection of rich qualitative data may assist in determining factors (both within and beyond a nurse's perception) that may impact cue recognition and vicarious functioning (Dunwoody et al., 2000).

For example, sociologically nursing practice (even when a nurse operates alone) generally takes place in the context of a wider team-focussed organisational structure (Nibbelink & Brewer, 2018). A team culture impacts decisions, because in some instances a nurse may base their reasoned deliberations in part on how they believe they will be perceived by their peers (Goethals et al., 2010; Nibbelink & Brewer, 2018). Nurse decisions may also be influenced by nominated leaders or other specific individuals into whose sphere of influence a nurse gravitates towards in the workplace (Nibbelink & Brewer, 2018). Importantly, it is pertinent to ascertain if nurses would carry out instructions of these influential leaders, in circumstances where the instructions may be inconsistent with evidence-based requirements of a patient (Goethals et al., 2010; Hagbaghery et al, 2004).

Furthermore, personal ethics and a belief in prosecuting right from wrong influences nursing practice (Goethals et al., 2010;). Nurses attach significant weight to their personal ethical principles and their understanding of the types of decisions made by a good nurse, to the extent nursing has been cited on multiple occasions internationally as amongst the most trusted of professions by the public (Girvin et al, 2016; Goethals et al., 2010; Landis et al, 2020). Research indicates ethical considerations of nurses are consistently well-reasoned and underpinned by evidence-based knowledge and skills (Goethals et al., 2010). However, perceived expectations of the profession (or other stakeholders) and a human desire to seek validation of their peers may create tension for nurses when making decisions comprising their ethics (Goethals et al., 2010; Lopez, 2009). Consequently, when confronted with professional codes of ethics and ethical positions assumed by their peers that conflict with their personal position, nurses may resort to delayed or deferred decision-making. Furthermore, when pressed to decide, nurses may defer to practice norms or adapt their practice to concur with the expectations of their peers (Goethals et

al., 2010). This is problematic if a nurse is correct when deciding to withhold or disclose confidential information, and their peers are not (Goethals et al., 2010; Nibbelink & Brewer, 2018).

A fear of legal or professional repercussions can also negatively impact on the decisions nurses make, if predicated on an illogical perception of the law or professional frameworks (Hagbaghery et al, 2004; Willmott et al., 2020). Conversely, it is reasonable to conclude a valid knowledge of laws and professional frameworks may instil nurses with self-confidence in their decision-making capabilities, with a demonstrable positive impact on the validity of nurse decisions (Conlon et al, 2019; 2021; Fry & MacGregor, 2014). A level of autonomy to make decisions in complex and challenging risk-laden clinical environments has the potential to enhance self-confidence, enabling nurses to expand the scope of their decision-making and leading to more efficacious outcomes (Fry & MacGregor, 2014). However, the presence of perceived or actual tension in a clinical environment (as can occur in the presence of risk) may potentially impact negatively on self-confidence and diminish the efficaciousness of decision-making (Conlon et al., 2019; Fry & MacGregor, 2014). A lack of emotional support from peers when a nurse requires reassurance may cause negative emotions to diminish self-confidence further, leading to even less effective outcomes (Hagbaghery et al, 2004).

Crucially, emotional considerations are commonly incorrectly interpreted as part of intuitive reasoning, often as the result of nebulous or inadequately presented cues (Hutchinson et al., 2018). Current research literature generally promotes the idea emotions inhibit reasoning and should have no role in decision-making (Kozlowski et al, 2017). Conversely, certain emotions are perceived by nurses as positively effecting, directing, augmenting, and otherwise contributing to the decision-making process, enhancing reasoning (Hutchinson et al., 2018; Kozlowski et al, 2017). Consequently, nurses would be expected to identify and manage relevant emotions (when

aware of them) to inform decision-making, whilst setting irrelevant emotions aside. Therefore, it is important to identify and categorise emotions and their impact on decision-making when perceived by nurses as forming an integral part of decisions made in complex or enervating scenarios (Hutchinson et al., 2018). CCT guided research is an appropriate framework to distinguish intuition from emotional responses, and the consequent impacts of emotions on analytical approaches to decision-making (Hammond, 1996; Hutchinson et al., 2018).

Once complete, should a perceived or actual lack of weight be attached to nurse decisions, even those that result in outcomes congruent with expectations, nurses may become task oriented (Nibbelink & Brewer, 2018). Furthermore, if decision-making results in outcomes that are incongruent with expectations and nurses are left feeling unsupported by those in charge, it may cause disillusionment and act as a barrier to subsequent effective decision-making (Hagbaghery et al, 2004). Task oriented approaches may also result from heavy workloads, whereby nurses adopt coping strategies that prevent them from fully participating in patient-oriented care (Goethals et al., 2010; Hagbaghery et al, 2004). Incidentally, fatigue may also cause a nurse to make a decision that is the easiest to implement, rather than one that in the best interests of a patient (Wolf et al., 2017).

It is reasonable to conclude the collection of rich qualitative data as a part of CCT guided studies will assist in identifying and accounting for these and other overt and covert influences on nurse decision-making, regarding confidentiality and disclosure in the context of risk (Hammond, 1996).

Implications

This theoretical review has added to contemporary literature by demonstrating the suitability of CCT for the examination of decision-making processes of nurses practising in mental health, concerning confidentiality and disclosure of patient information in the context of risk. It has identified CCT is analogous in arrangement to structured clinical judgement. Therefore, CCT is not limited to examining decision-making for confidentiality and disclosure but is suitable for the examination of all risk related decision-making of nurses (and indeed all clinicians practising in mental health). Furthermore, CCT offers researchers the opportunity to enhance structured clinical judgement by describing and aligning task properties, cognition, and modes of inquiry, for accurate nurse decision-making. Notably, CCT encourages researchers to engage in studies that assist nurses in ascertaining the ecological texture of the environment of a patient at risk, to ensure judgements that underpin nurse decision are validly made. In ascertaining true cue validity of the environment, CCT also offers a pathway to assess professional prowess and engage in practice improvement by comparing nurse determinations with statistically derived available indicators of risk. Furthermore, CCT guides researchers investigating the impact of sociological and other human-centric considerations on nurse decision-making, whilst nurses' ability to process functional relations and engage in pattern recognition to make decisions can also be explored.

Conclusion

Nurses practising in mental health are often positioned to be the first clinician to recognise when disclosure of confidential health information pertaining to a patient may be necessary to circumvent harm. However, decision-making in this context is complex and breaches of

confidentiality may lead to adverse consequences for stakeholders. Nonetheless, there is a dearth of research literature to assist decision-making of nurses in these circumstances.

CCT provides a suitable approach to understand decision-making processes of nurses practising in mental health. It is a single-system model of cognition built upon quasirational 'common-sense' reasoning that naturally aligns with structured clinical judgement. CCT guided research can lead to practical guidance and practice improvement of nurses (and potentially other clinicians) by examining and describing how nurses: conceptualise risk; comprehend the concept of 'public interest'; understand rules of confidentiality; and balance competing public interests. The principles of functional relations and pattern recognition are also consistent with data-collection practices of nurses and are suitable for investigating the operationalisation of nurse cognition, when deciding to withhold or disclose confidential information pertaining to a patient deemed a potential risk to self or others. Additionally, the collection of rich qualitative data within the framework of CCT guided research may assist in identifying human-centric considerations that impact on decision-making.

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Table 1: Correlation of tasks and cognition. Adapted from Doherty and Kurz (1996, p. 131).

Intuition	Quasirationality	Analysis
Task is familiar		Task is unfamiliar
Absence of prior training or information about a task	A blend of task properties	Presence of prior training and information about a task
Greater than five cues	Inducing both intuition and analysis	Two to four cues
Contemporaneous presentation of cues		Sequential presentation of cues
Intercorrelated cues		Orthogonal cues
Cues are distributed normally		Cue distribution is skewed, peaked, multimodal, or of binary distributions
Pictorial cues		Quantitative cues
Decision-maker measures cue levels		Objective measures, pointer readings
Judgement scale has multiple alternatives		Judgement scale has minimal alternatives
Rapid response required		Open response time
Criteria are of normal distribution		Criteria are skewed, peaked, multimodal, or binary
Linear functions relating cues to criteria		Nonlinear functions relating cues to criteria
No available organising principle		Organising principle readily available
Cues of equal weight		Cues of unequal weight
Organising principle is linear		Organising principle is nonlinear
Presence of ‘outcome knowledge‘		Absence of ‘outcome knowledge’
Minimal or absent feedback		Presence of cognitive feedback

Table 2: Modes of inquiry. Adapted from Hammond (1996) and Cader et al (2005).

	Cognition	Mode of inquiry					
1.	Pure analysis					Most control	True experimental
2.	Mostly analysis, with some intuition					Control group experimental and statistics	
3.	Somewhat more analysis than intuition				Quasi-experimental with relaxed controls		
4.	Somewhat more intuition than analysis			Computer modelling			
5.	Mostly intuition, with some analysis		Data-based expert judgement				
6.	Pure intuition	Unrestricted judgement	Least control				