Decision Making in Relation to Financial Elder Abuse: A Review of the Literature on Decision Making and Judgment Analysis

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With

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Series Title

NDA Project: Detecting and Preventing Financial Abuse of Older Adults
The New Dynamics of Ageing Programme is a seven year multidisciplinary research initiative with the ultimate aim of improving quality of life of older people. The programme is a unique collaboration between five UK Research Councils - ESRC, EPSRC, BBSRC, MRC and AHRC - and is the largest and most ambitious research programme on ageing ever mounted in the UK.

The programme aims to develop practical policy and implementation guidance and novel scientific, technological and design responses to help older people enjoy better quality lives as they age. This requires integrating understandings of the changing meanings, representations and experiences of ageing and the key factors shaping them (including behavioural, biological, clinical, cultural, historical, social, economic and technological), through direct engagement with older people and user organisations. The programme will harness inputs from a wide range of disciplines to reveal the dynamic interplay between ageing individuals and their changing technological, cultural, social and physical environments - local, national and global - and to develop methods and means for overcoming the consequent constraints on the quality of life of older people.

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Decision Making in Relation to Financial Elder Abuse: A Review of the Literature on Decision Making and Judgment Analysis

This Working Paper reviews the literature related to different judgement and decision making theories and approaches, evaluating their potential application for researching decision making in cases of suspected financial elder abuse. To begin, key debates in the literature are introduced to consider the implications of these issues for the study of decision making in relation to financial elder abuse. The potential application of various judgement and decision making approaches to financial elder abuse research is then critiqued.

Introduction

Review of the judgement and decision making literature identified a number of theoretical and methodological approaches for research in the field as well as some central debates. Before outlining these it is useful to introduce the different definitions of judgement and decision making, and the motivations for research in this area. These provide context to the literature organisation and different researcher standpoints.

Judgement and decision making have to some extent been looked at as distinct research areas despite the association between the processes both in terms of lay understanding and research driven definitions. Goldstein and Hogarth (1997) describe judgement to be how people balance information and the extent to which the direction taken corresponds to the information available, whereas decision making focuses more on the outcome in terms of a person’s actions or choices, and how these could be improved. Holzworth (2001) discusses judgement and decision making in terms of broader research objectives, such as decision analysis research which can focus on whether people make rational decisions, versus judgement analysis of which one focus has been to look at the accuracy of people’s judgements. The rationality and accuracy of judgement and decision making are two topics that will be looked at in greater detail when considering key debates in the field.

The process of reasoning is also associated with judgement and decision making due to its conceptual overlap. A deductive reasoning problem is one where an individual is given a number of conditions of an argument and then has to decide based on that information whether a particular conclusion follows. Evans, Over and Manktelow (1993) argue that it can be difficult to separate the processes of reasoning and decision making in everyday life given that a decision between two options may involve making inferences about the likely impact of either choice, whereas in reasoning people have to make the decision in relation to what information to reason about.

Despite offering alternative focuses on outcome (decision making) versus technique (judgement), the strands complement one another in terms of topic coverage, and therefore research evidence from both perspectives is able to add value to the understanding of judgement and decision making (Johnson-Laird & Shafir, 1994). The definition distinctions could in themselves be argued as a prominent debate in the field, but extensive focus on terminology detracts from the applied value of judgement and decision making research to understand behaviour and potentially solve problems. As such, this review will outline background literature without tailoring on the basis of definitional preference for reasoning, judgement or decision making.

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1 A search was initially conducted using Brunel University library catalogue using general search terms relating to judgement and decision making. Subsequent review of textbook materials was used to guide a more targeted search strategy using the abstract databases Scopus (Key search terms including ‘Social judgement theory’, 1955 - 2008; ‘Utility Theory’, 1953 – 2008; and ‘Bounded rationality’, 1955 - 2008) and Web of Knowledge (Key search terms including ‘Decision making & elderly’, 1985 – 2005; and ‘Decision making & abuse’, 1985 - 2007). This was in addition to searching via author facility to include other literature by key researchers (Examples included Hammond, K., Wigton, R., and Tversky, A.). The reference lists of selected materials were also examined to identify other articles of interest.
Research into how people make judgements or decisions can help us to better understand behaviour in different situations. As well as the development of general theories to explain decision making, there is also an interest in improving understanding of specific types of decisions such as those seen to be of some social significance (Hastie, 2001). For example, research has been conducted by Trujillo and Ross (2008) to look at how police judge the level of risk of a repeat occurrence in cases of domestic violence. Assessment of 501 case reports from 87 police stations in Victoria, Australia, identified that there was a significant relationship between the risk assessment (the perceived likelihood of repeated violence ranging from rare, to almost certain) and the action police then took in cases of domestic violence, meaning it is important to understand judgements surrounding risk assessment. Considering judgement and decision making in the context of community issues such as domestic violence draws parallels with the proposed study of financial abuse of the elderly. Care of older people involves a number of social elements such as family relationships and intervention by care providers where abuse is suspected.

Judgement and decision making research has also been used to investigate clinical decisions. Medical decision making is an area that has been a focus for researchers, perhaps because people attach importance to health related decisions due to the potential impact on general wellbeing or even longevity. Wigton (1996) outlines the different types of decisions medical practitioners commonly have to make, such as patient diagnosis, treatment options or establishing a likely prognosis. Health professionals could be involved in judging likely financial elder abuse in their interactions with older patients, therefore observations drawn from broader judgements in clinical scenarios may provide useful information.

Prior to presenting theories and approaches to judgement and decision making research, three longstanding debates are discussed to consider how they might apply in the context of financial elder abuse decision making. These include firstly the degree of rationality in people’s decision making, secondly whether accuracy of judgements and decisions can be improved, and thirdly the impact of risk on how people make decisions.

Rationality and decision making

Evans et al. (1993) distinguish between rationality as defined by rules of logic (e.g. deductive reasoning principles) and something being rational if it enables you to achieve what you want to achieve. Evans et al. (1993) make the point that where people are shown to be irrational in cases where the principles of particular decision making theories are violated, this is because these two different ideas of rationality are incorrectly taken as connected (i.e. that rational process reasoning (fulfilling logical principles) is needed to achieve rational desires). Therefore, it seems that the question is not so much as to whether decision making is rational, but how rationality is qualified.

In cases of suspected financial elder abuse, the rationality debate highlights the conflict professionals have to address in terms of how they know the rules state they should act, versus what they think is logical. To study decision making it is important to consider how professionals address this conflict as part of the decision making process.

Improving decision accuracy

The second prominent debate is how to improve decision accuracy, one example being research in the field of medical decision making to improve accuracy of diagnosis. The debate over decision making accuracy is driven by the desire to improve the likely outcome of decision making to help people make ‘better’ decisions. It is not always clear-cut how to define a good decision. Keren and Bruine de Bruin (2003) discussed how the quality of a decision can be assessed by looking at the process by which the decision was reached, as well as the actual outcome. They highlight that a good process does not necessarily lead to a favourable outcome, such as if surgery is a technical success but the patient dies. This therefore influences our evaluation of decision accuracy. Decision making accuracy will need to be considered when thinking about the types of decisions to be made when dealing with a case of suspected financial elder abuse. These could include an individual having to initially decide if they think someone is being financially abused even before considering if they would intervene, and how. If
incorrect, these decisions could have serious implications for an older person as well as for the person accused of abuse.

**Risk and decision making**

Risk and decision making is the third key debate identified from the literature. Research has followed various strands such as understanding how people make judgements concerning the risk of different situations (Slovic, 1987). This is in addition to problem solving research to minimise or manage the risks involved in a judgement or decision (Hastie, 2001). Interest in risk perception and decision making is also a stimulus for research on expert decision making, due to the differences between how experts in a particular field make judgements in comparison to non-experts. The judgement of risk by non-experts is given the label of risk perception rather than risk assessment (Slovic, 1987). The emphasis on perception could mean that for a non-expert other factors come into play such as how controllable a risk is seen to be. Assessing circumstances of financial elder abuse also involves consideration of risk. This may include the risk of repeated financial abuse, or if other types of abuse are co-occurring, risk to immediate safety.

The following sections will outline different judgement and decision making theories and approaches. Those covered in this review have been selected to demonstrate the key debates in the field, as well as their potential application to the study of financial abuse.

**Theories and approaches**

Theories of judgement and decision making have different purposes, for example predicting future behaviour versus explaining the process of how a decision is reached. The perceived value of different theories depends on underlying research motivation. The first theory considered is utility theory, which suggests that people make decisions using mental calculations.

**Utility theory**

The historical development of utility theory shows that decision making is a topic of long held research interest, as well as indicating one of the diverse fields from which decision making theories have emerged. Utility theory was initially developed by economists to understand gambling behaviour. Literature reviews of the development of utility theory highlight the work of Daniel Bernoulli in as early as 1738 in relation to the St Petersburg Paradox (Schoemaker, 1982). This is a test of how much money people would be willing to bet on a series of coin tosses to land on ‘heads’ when offered a cumulative prize depending how many consecutive throws of the coin could obtain this outcome. The observation was made that people’s behaviour (the amount they were willing to bet) was guided by a personal perception (utility) that did not reflect the potential value of the prize obtainable, as bets were generally cautious (Starmer, 2000). Expected utility theory suggests that when judgements are made about events where the outcome is uncertain, utility is multiplied by the likely probability of each outcome (Baron, 2008).

The application of expected utility theory for understanding decision making comes from the assumption that individuals will always act to maximise expected utility (Edwards, 1954). This means that if we can identify the value of different outcomes for an individual and the associated probabilities, we can anticipate likely decisions. One concern about this initial conceptualisation of utility was how it could be measured (Goldstein & Hogarth, 1997). Von Neumann and Morgenstern (1953) attempted to address the issue of measurement by specifying a series of axioms. If these conditions were met, the suggestion was that the expected utility of different choices for an individual could be obtained. The first necessary assumption for this was that people could specify that they preferred one option to another or that they had no preference either way (the axiom of completeness). In addition, the notion of transitivity applies in that if Option A is favourable to Option B, and Option C is favourable to Option A, then it can be taken that Option C is also favourable to Option B. Decisions which break the notion of transitivity are often referred to in the debate regarding whether decision making is a rational process (Edwards, 1954).
Consideration of the general components of utility theory including utility value and probability (either known or unknown) does raise some questions about use of the theory in certain situations. With regard to probability, some situations may involve assessing unknown quantities. Using financial elder abuse as an example, this could be the likelihood of financial abuse itself having actually occurred. Associated known probabilities may also have an effect as statistics are often used to demonstrate impact and for target setting. For example, knowledge of quality of life in the home compared with the implications of residential care may impact upon how professionals decide to deal with a case of elder abuse. This could potentially lead to the disparity of a judgement of a high likelihood of abuse but no intervention. An additional consideration is that because the decision is being made on behalf of someone else, this may in itself impact on how the value of different options is assessed. There is therefore the potential for conflict between how the professional values a particular option and how they believe the individual in question would value it.

Researchers have attempted to address the issue of unknown probability assessment. Savage (1972) introduced subjective expected utility theory (SEU). This suggests that where the probability of different options are unknown, an individual’s own estimates of how likely the different outcomes are seen to be can be used to evaluate perceived value. A research demonstration of measuring SEU to capture decision making can be seen by referring to Bekker, Hewison and Thornton (2004). The researchers were interested in how women made the decision as to whether or not to have a prenatal test for Down’s syndrome. In the experimental condition in addition to regular consultation, other activities took place. Firstly, a decision tree was used to illustrate the options available (See Bekker et al., 2004, p. 272, Appendix 1). The value of the different options for the individuals and the risk they associated with each was then measured using a short questionnaire. To capture the ‘global utility’ of the decision, patients were asked to weigh up at what point, for them, the risk of Down’s syndrome would mean they chose to have a termination.

The evaluation of global utility in the Bekker et al. (2004) study raises questions as to the application of utility theory to different types of decisions. Instances such as the decision of whether or not to have a particular clinical test have a ‘yes’ or ‘no’ option. Where a problem has multiple decision options or involves making a series of related decisions, a ‘global’ one comparison utility assessment would not be possible. The notion of SEU in itself is also interesting in terms of whether there is a difference between subjective probability assessment and known probabilities. I.e. even when probabilities are known, does the individual interpret probability in the same way? This leads to the question of why people do not follow the tenets of utility theory.

Revisions have been proposed to expected utility theory to explain why people do not always follow the principle of maximising expected utility when making decisions involving a degree of risk. To address this point Kahneman and Tversky (1979) developed prospect theory, which has two key aspects, namely the value function and weighting function. The value function evaluates prospects providing a measure of the perceived value of an option, and the weighting function provides an alternative to expected utility theories’ multiplication of utility by probability. The value function specifies that prospect value is determined by whether it is seen as positive or negative compared to the individual’s initial reference point. Value takes into account both the starting reference point as well as the strength of the change. For example, in monetary terms, an increase in prize from £10 - £20 seems more valuable than a change in prize from £1110 to £1120 (Kahneman & Tversky, 1979). Despite the fact that the absolute gain is the same, in the first instance £10 doubles the prize fund, whereas in the second the gain is smaller relative to the initial reference point. A negative value assessment may therefore mean that an option is declined despite the fact that it improves the current position. Kahneman and Tversky (1979) also demonstrated that people have a more extreme response to losses than gains.

Rather than multiplying prospect value by probability as with expected utility theory, the suggestion is that prospects are multiplied by decision weight (Kahneman & Tversky, 1979). This is a measure of how attractive an option is for an individual if it occurs. Prospect theory can therefore be applied in situations where the probability of different outcomes is unknown. Decision weights may also be thought of as distorted probabilities (Baron, 2008), which is a useful comparison when the factors that can impact decision weights are considered. One example Kahneman and Tversky (1979) gave was the certainty effect, whereby people give a greater weight to outcomes specified as certain.
Prospect theory and the value function are also associated with the framing effect. Framing can mean that people respond to two problems that are inherently the same in different ways. Tversky and Kahneman (1981) demonstrated the impact of how a problem is framed on people’s preferences. Decision framing is not only the result of individual interpretation of decision information but also a reflection of how the decision problem itself is laid out. Tversky and Kahneman (1981) outline three key elements of a decision including consideration of the available options, their likely consequences, and associated contingencies. The impact of framing on preference is used as evidence in the debate concerning decision making rationality in that it violates the expectation that a rational choice should be consistent and coherent (Tversky & Kahneman, 1981). Problem framing research has also identified that people are more risk averse if a decision is framed in terms of gains, and conversely more willing to take risks if a problem is presented in terms of likely losses. Problem framing is interesting from a methodological perspective as to how a decision can be presented to participants to consider without the presentation format impacting on their decision.

Evaluation of utility theory identifies certain strengths and weaknesses that should be considered when thinking about its application to specific decisions. One of the strengths of utility theory is that it can be both easy to use and demonstrate to others in order to support the decision making process. When making medical and monetary decisions, outcome probabilities can be clearly conveyed such as the risk of an operation. In other situations, there may be multiple levels of decisions a professional has to make though (e.g. with financial abuse; do I suspect abuse, do I act, how do I act?) and each lacks a definitive way to assess both probability and utility.

Overall, the research applications of utility theory highlight the value of a theory that can be easily conveyed to people. For example, Bekker et al. (2004) present a clear visual representation of decision options in relation to Down’s syndrome testing using a decision tree. Applied research value is particularly important in the case of decision problems with a social angle like elder abuse, as the research should ultimately support practical recommendations for professionals when making decisions. This is therefore a point to consider when determining an appropriate theoretical basis to study decision making in cases of financial abuse. It does seem that the success and application of utility theory depends on whether the elements of utility/value and probability/weighting can be identified, and this limits its application to structured scenarios like gambling. As such, utility theory does not seem to offer the most appropriate theoretical approach to explore decision making in cases of financial abuse given the number of potential unknowns in the decision making process.

The next section will consider an approach known as actuarial judgements. These present a distinctly different picture of decision making than utility theory, as no estimation or interpretation is required to establish a judgement.

**Actuarial judgements**

In 1954, Paul Meehl released a book comparing the accuracy of actuarial (statistical) or mechanical estimates versus clinical judgements. Mechanical predictions describe a series of techniques used to combine pieces of information in a formalised manner such as multiple regression, to make a judgement without requiring a subjective (clinical) evaluation (Grove & Meehl, 1996). Actuarial predictions are a form of automatic mechanical prediction, but where the prediction is always statistically optimal. Researchers have debated the relative benefits of both the actuarial and clinical judgement position. Meehl’s standpoint was not taken from the pro-actuarial assumption that actuarial methods are always more accurate than clinical predictions, but he highlighted research evidence that actuarial predictions are at least as accurate as clinical predictions. This holds implications for decision making strategies in situations where clinical judgements are commonly applied. Meehl clarified his position in the preface to his 1996 book reprint as follows, with the message being that methodology and practice guidelines should be more flexible.

“There is no convincing reason to assume that explicitly formalized mathematical rules and the clinician’s creativity are equally suited for any given kind of task, or that their comparative effectiveness is the same for
The point made is that actuarial and clinical judgement comparison should not represent a debate as such, but should instead encourage consideration of both perspectives. Meehl highlights research by Grove, Zald, Lebow, Snitz and Nelson (2000) comparing the accuracy of mechanical predictions versus clinical judgements as further evidence in support of early findings. Grove et al. (2000) conducted a meta-analysis including 136 studies from the psychology and medical fields, which echoed Meehl’s early conclusions that mechanical judgements are at least as effective as clinical judgements, and more so in many instances. Subsequent researchers have identified that Meehl was keen to ensure an unbiased comparison of actuarial versus clinical judgements by outlining guidelines for study comparison so as not to artificially favour actuarial judgements (Dawes, Faust & Meehl, 2002).

Dawes et al. (2002) discuss why actuarial judgements have been found to compare favourably to clinical judgements. One of the first points to consider is reliability. If an actuarial judgement is made based on the same set of information presented more than once, it will remain the same. With clinical judgements, extraneous factors such as stress, or time pressure can mean that the judgement is altered despite the case information remaining the same, with a subsequent effect on accuracy. A development of this point would be where decisions are made in groups. If even with one decision maker repeat presentation can end in an alternative outcome, judgements are also likely to differ person to person meaning it is difficult to reach a consensus. A second issue relates to how variables influencing judgements are dealt with. Using the actuarial approach, only proven predictive variables are evaluated. For clinicians, a lack of feedback as to the nature of the relationships between variables and outcome can mean that it is difficult to exclude variables based on lack of predictive power (Dawes et al., 2002).

The actuarial/clinical debate raises questions as to why clinical judgements dominate if evidence suggests actuarial judgements are as accurate. In a discussion of actuarial research evidence, Grove and Meehl (1996) thoroughly address the key criticisms levelled at the actuarial approach. The sheer number of criticisms perhaps explains why the balance in favour of clinical judgements has not been addressed. One point Grove and Meehl (1996) discuss is the suggestion that clinical judgements are more respectful of patient’s needs and vulnerable position. This particular criticism demonstrates that although actuarial research conclusions have implications for clinical practice methods, it is important to consider the specific context of the decision situation, such as ensuring patient confidence.

Meehl (1954) suggested that if actuarial methods are at least as effective as clinical judgements, this advocates greater use of non-clinicians trained to make statistical predictions. Bearing in mind the attachment people have to the human aspect of decision making, use of actuarial judgements in certain medical decision making situations would require extensive education to allay people’s fears.

Overall evaluation of actuarial judgements highlights the value of such an approach in terms of both accuracy, and the ability to incorporate multiple judgement cues. The use of statistics to support practitioner financial abuse decision making could also be important in order to promote decision making based on an evidenced and rigorous process.

The next section moves away from the focus on using decision making research to predict likely behaviour and to think instead about the mental processes that support how we make judgements and decisions.

Dual process models

This section will focus on cognitive process theories relevant to judgement and decision making, looking in particular at dual process models. This is useful background for the upcoming sections addressing heuristics and social judgement theory as these demonstrate the different characteristics exhibited by the dual process idea.

Dual-process models identify two cognitive systems with striking differences between their operations, and are a popular conceptualisation used to explain cognitive processes. Evans (2008) provided two tables, one outlining examples of dual process theories, and the second (of which an
amended version is included below), listing different characteristics that distinguish between the dual processes. Table 1 below focuses on the characteristics Evans (2008) identified as representing consciousness aspects of the dual idea. This focus has been chosen because of the reoccurrence of consciousness and awareness as a theme across the decision making literature.

Table 1: Characteristics of the dual process model
Amended from Evans, 2008, Table 2, p. 257

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<tr>
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<th>System 1</th>
<th>System 2</th>
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<tr>
<td><strong>Cluster 1 (Consciousness)</strong></td>
<td>Unconscious (preconscious)</td>
<td>Conscious</td>
</tr>
<tr>
<td></td>
<td>Implicit</td>
<td>Explicit</td>
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<tr>
<td></td>
<td>Automatic</td>
<td>Controlled</td>
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<tr>
<td></td>
<td>Low effort</td>
<td>High effort</td>
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<td></td>
<td>Rapid</td>
<td>Slow</td>
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<td></td>
<td>High capacity</td>
<td>Low capacity</td>
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<tr>
<td></td>
<td>Default process</td>
<td>Inhibitory</td>
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<tr>
<td></td>
<td>Holistic, perceptual</td>
<td>Analytic, reflective</td>
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Researchers such as Stanovich and West (2002) used the labels System 1 and System 2 to represent the dual processes. In terms of making judgements, the suggestion is that System 1 produces an intuitively based judgement. This is then reviewed by System 2 and can then be amended as necessary. The operations of the two systems do not always result in agreement. Sloman (2002) gives the example of how people respond to classic reasoning problems to demonstrate the difference between what we intuitively think (System 1) and what we know to be true (System 2). Kahneman and Frederick (2002) stress that judgement bias and error should be thought of in terms of the role played by both System 1 and System 2, rather than focusing on errors associated with System 1 only. This means the error could be a failure of System 2 to make a correction rather than a bias of System 1, or the error could be with both systems.

Dual process models have been used to provide insights into different situations. Gerrard, Gibbons, Houlihan, Stock and Pomery (2008) considered a number of dual process models and decision making theories in the context of adolescent behaviour, in an attempt to better understand ‘risky’ decisions such as drinking alcohol. The conclusion reached was that theories addressing only one side of the dual process idea were not as successfully applied in the context of risky behaviours. Gerrard et al. (2008) suggest that purely theoretical models such as the Theory of Planned Behaviour (Ajzen & Madden, 1986) are able to explain health protective behaviours such as fruit and vegetable intake, but are less successful with unpredictable behaviour such as adolescent smoking or alcohol consumption.

The principle of dual process decision making has also been applied to interventions, to target both the analytic and intuitive elements of how people make decisions. Gerrard et al. (2006) reported on the Strong African American Families programme, which adopted a dual process model (the prototype/willingness model). This was a preventative campaign to tackle perceptions about drinking behaviour in 281 African American young adolescents (aged 10 – 12 year olds). In the intervention condition, children and parents attended a series of separate, and combined workshops. In the children’s workshops, to address the planned analytical aspect of decision making the content included things that would affect children’s intentions to drink in the future. For example, the programme identified that younger adolescents commonly have negative ideas about drinking, and so tried to reinforce these. The aim was to modify children’s prototype images of drinkers in terms of how they view other children who drink. To target the more unplanned aspect of early drinking, children were taught how to identify situations where there could be a risk of drinking occurring, and what they could do in such cases, i.e. willingness to engage in risky behaviour. Alongside this, sessions addressed how parents could demonstrate their views about alcohol consumption to the children to lay out
expectations. The results reported a significantly smaller increase in drinking at two years follow-up when comparing the intervention to the control group.

Overall it seems that dual process models provide a useful way to think about what actually happens when someone makes a decision, as well as providing a means by which to compare decision making theories using a common language. In terms of decision making in cases of financial abuse, thinking about the decision making process itself may be a useful way to identify the processes leading to abuse detection, and subsequently the best course of action. It also raises questions as to how professionals’ intuitive assessment of the situation could affect the resulting judgement, despite the fact that a formalised procedure may then be followed. Consideration of the professional decision making process in cases of financial abuse could therefore examine if decision making is actually the culmination of a series of interrelated decisions.

The next section will consider the use of heuristics and biases to reach judgements.

Heuristics and Biases

In situations involving a degree of uncertainty, people can apply intuitive strategies known as heuristics to make judgements. Heuristics are cognitive shortcuts that break down problems into something more straightforward, to make the judgement process easier (Tversky & Kahneman, 1974). Heuristics are applied under circumstances when judgements need to be made quickly and/or when the likelihood of different outcomes is unknown (Gigerenzer, 2008). Herbert Simon’s (1956) notion of bounded rationality is an important concept to consider in the context of heuristics and biases as it suggests an implied value of heuristics, but also has parallels with ideas associated with Brunswik and subsequently social judgement theory, which is considered in the next section. Bounded rationality suggests that rather than aiming for the optimal solution, the reality is more of “satisficing”, to achieve a solution seen to be good enough bearing in mind the information and cognitive resources people have available. The rationality of decision making is therefore dependent on environmental constraints of information, and aspects of the individual such as their cognitive resources. Simon (1955) focuses on a similar observation of Brunswik’s lens model, by highlighting the importance of interaction between the organism and the environment.

“...what we call “the environment” may lie, in part, within the skin of the biological organism.”
(Simon, 1955, p. 101)

The notion of bounded rationality holds strong resonance in relation to circumstances of financial abuse as it considers the practical context in which decisions have to be made. Professionals are likely to have a limited amount of time with each older person in which to decide if they are being financially abused and what action to take. Using health professionals as an example, a GP conducting a consultation may have a restricted time slot with each patient. Computational resources to determine if an individual is being financially abused are also likely to be minimal given that this will not be the primary focus of the contact with the older person.

Tversky & Kahneman (1974) outline the three more commonly referenced heuristics and the potential biases that can result from their application when making judgements, these being representativeness, availability and adjustment and anchoring. The first two only (representativeness and availability) will be discussed in this review, with comment on their application to judgement and decision making in cases of suspected financial elder abuse.

An example Tversky and Kahneman (1974) used to demonstrate the representative heuristic starts with a stereotypical description of a librarian. In a situation where an individual is judging what someone’s job is, the representative heuristic looks at similarities between the description of the individual, and pre-conceived ideas of different job roles. The individual’s description seems to match what a librarian is thought to be like, but there are a limited number of librarians in the population, meaning the person being described is actually more likely to hold an alternative profession. The principles of representativeness could be applied to financial elder abuse decision making, in that one of the tools professionals use to support the decision making process is a list of potential indicators of
elder abuse. Ultimately, the success of this as an approach to identification depends on the extent to which the indicators can distinguish between what is actually abuse, as opposed to factors that may be present as part of the general ageing process. This point echoes that drawn by Johnson-Laird and Sharif (1994) when evaluating the impact of typical versus distinct cues on improving decision making accuracy.

The second heuristic explained by Tversky and Kahneman (1974) was availability, whereby people determine the likelihood of an occurrence by how easily they can recall examples of it. This judgement approach can also lead to particular biases, one being the impact of instance “retrievability”, the suggestion being that if you are asked to make a judgement about how frequently something happens, and you have experienced it recently, you may judge the likelihood of it happening again to be higher. Our understanding of financial abuse relies in part on professional case experience, and with more frequent case examples to draw upon this may impact upon how professionals assess the scale of the issue and therefore interpretations of overall prevalence (Crosby, Clark, Hayes, Jones & Lievesley, 2008). Conversely, the limited numbers of national studies of elder abuse that have been conducted such as the Comic Relief and Department of Health UK study of abuse and neglect also question prevalence rates, but suggest an underestimation (Manthorpe et al., 2007). There is therefore a degree of uncertainty about the numbers of older people affected by financial abuse due to potential under and over reporting, and the impact of different interpretations of abuse (Crosby et al., 2008). It is important that the emotive nature of abuse does not motivate action on the assumption of guilt as the baseline position.

The biases that could result when making decisions about financial elder abuse highlight the complex issues surrounding decision making in such cases. Professionals making decisions need to be supported by research evidence tailored to the demands of the decision making situation. Research demonstrating the use of judgement heuristics on one-hand focuses on the biases demonstrated by Tversky and Kahneman (1974) as evidence that people are prone to making ‘bad’ decisions and that consequently heuristics are negative because of the associated biases. For example, Klein (2005) outlines how heuristic biases can impact on medical practitioners’ decision making, and makes suggestions as to how the observed biases can be avoided.

An alternative focus is on the value of heuristics, in terms of circumstances when they result in accurate judgements. This is in addition to what the biases tell us about decision making as highlighted in relation to financial elder abuse prevalence rates. In the case of medical decision making, if evidence suggests practitioners commonly apply heuristics, heuristics must have value beyond cases when biases result in judgement errors, otherwise people would not continue to rely on health professionals. Eva and Norman (2005), in a commentary on Klein’s critique of the use of heuristics in medical decision making, argue that even if the biases associated with heuristics can be avoided, medical decisions would never have a 100% success rate. This is because health decision making is a prime example of decision making with a series of unknown indicators. The acceptance of error was also a point made by Brunswik, in the context of dealing with uncertain environmental cues (Wigton, 2008).

A positive conceptualisation of heuristics is as offering an ‘adaptive toolbox’, that equip people to deal with different situations. Gigerenzer and Todd (1999) describe the role of fast and frugal heuristics in the adaptive toolbox. So called fast and frugal heuristics enable people to make good decisions, within the context of having limited time and computational resources. This is a form of bounded rationality (Simon, 1956), but one that emphasises the circumstances in which these heuristics are successful. Gigerenzer (2008) provides the example of how the adaptive toolbox idea has been applied to understand cognitive biases associated with the heuristics approach.

Overall it seems that heuristics encourage consideration of the practicalities of making decisions, in that as well as an analytic approach not always being possible due to time and resource constraints, such a labour intensive approach may not even be necessary. When thinking about the application of heuristics to financial abuse, it would be interesting to consider how much information professionals use when deciding if they think financial abuse is taking place. If minimal information was used to reach a decision, this may provide support for the role of heuristics in such circumstances. Conversely, if a large amount of information was used in the decision making process this may indicate a more analytic approach such as that advocated by judgement analysis, considered in the next section.
An alternative perspective to the dual-process idea is Hammond’s cognitive continuum (1955) where cognitive processes are considered in terms of a scale relationship. This will be discussed in the following section, which outlines social judgement theory and the methodology of judgement analysis. In the context of the dual process model this represents the analytic perspective on decision making.

**Social judgement theory**

Social judgement theory applies the principles of Egon Brunswik’s lens model of perception to judgement analysis (Cooksey, 1996). Before judgement analysis is outlined, it is important to define pertinent terminology used in the context of this theory, due to its impact on the methodology applied. A key term to explain is probabilistic functionalism, the research approach championed by Brunswik. Functionalism means considering the relationships between an individual and their surroundings in preference to establishing cause and effect using rigorous control; whilst probabilism demonstrates that the relationship between an individual and their environment is underpinned by uncertain interactions between environmental variables (Cooksey, 1996).

The lens model uses specific terms to refer to the relationships between environmental variables (distal cues), how an individual perceives them (proximal cues), and ultimately the judgement made (achievement) (Cooksey, 1996). Hammond (1978) noted that some of Brunswik’s key ideas have been misused and misinterpreted by subsequent researchers, such as use of the term ecological validity. Hammond (1998) provides examples of how researchers have confused ecological validity with representative design and the extent to which results can be generalised. The term ecological validity was used by Brunswik to refer to the correlation between proximal cues and distal criteria (Hammond, 1978), with correlation value providing a measure of the strength of the relationship between these two aspects.

The confusion of ecological validity and representative design is relevant because of the significance of representative design as one of Brunswik’s guiding principles. Brunswik suggested that the methodology of representative design should be used to capture the probabilistic relationship between proximal and distal criteria. A representative design in the context of probabilistic functionalism means sampling situations and objects in the environment to capture the nature of the relationships between environmental variables. This idea offered an alternative focus to capturing variation in the population of interest whilst controlling extraneous variables. In order for research to be generalised beyond the specific experimental case the situation itself needs to be varied in the same way that the study participants should represent a cross section of the population of interest (Hammond, 1978).

Brunswik’s original lens model of perception can be seen in Cooksey’s (1996) book, which also explains how the lens model can be applied in judgement analysis. Brunswik was interested in perceptual constancy, meaning how individuals are able to estimate the size of an object relatively accurately despite the uncertainty of distal cues. The lens model shows the process by which object perception is achieved by outlining the relationship between distal and proximal cues (Hogge, 2001).

The principles of Brunswik’s Lens Model have been applied widely. Karelaia and Hogarth (2008) conducted a meta-analysis of studies employing the lens model equation. Exclusion criteria were applied, such as where achievement information was either not provided, or could not be calculated. The final analysis included 86 research articles spanning between 1954 and 2007, and incorporated 249 judgement scenarios. One of the conclusions drawn was that lens model analysis was able to accurately model both how people make judgements, and the conditions of the environment in which they make them. Figure 1 shows the lens model in the context of social judgement theory.
In Figure 1, *Achievement* represents the correlation between an individual’s judgement and distal criterion that were in place. The *zone of ambiguity* refers to how the individual deals with the uncertain relationships between environmental variables.

Social judgement theory is strongly associated with Hammond (1955), who initially applied Brunswik’s principles of probabilistic functionalism and the associated methodology of representative design to study clinical judgements. Using a representative design, cues are deliberately not controlled so that interactions can occur as they might normally. This allows for vicarious functioning, the idea that people use different pieces of information to the same effect, e.g. when driving, both the height of an object and how blurry it appears can be used to determine how far away it is (Hammond, 1955).

The next consideration is how judgement analysis is used in practice. One level of investigation is called the single-system design, which captures how cues are evaluated to reach a judgement, but cannot assess the outcome itself (Cooksey, 1996). An example would be policy-capturing studies, which determine at an idiographic level how different pieces of information are weighted in the judgement process (Wigton, 2008). Hoffman (1960) explains how techniques such as regression analysis could be used to model the judgement process in such studies in a way that does not require the participant to be aware of the process. Similar to Brunswik’s idea of functionalism, Hoffman stresses the importance of such techniques to develop “a useful level of objective description.... describe relationships between events or phenomena.” (Hoffman, 1960, p. 117). In practice, this approach involves participants making judgements based on cases which include a number of cues to determine which cues emerge as having the most significant influence on the judgement to be made.

The next level of investigation is the double-system, which measures aspects of the environment as well as the judgements, giving the potential to assess judgements against environmental criteria (Cooksey, 1996). With a single-system design we can identify how an individual makes a judgement, but with a double system we can compare the individual’s cues weightings with what we know about the relationship between environmental cues and judgement. This could be knowledge gained from evaluation of multiple cases, which then provides a point from which to compare how the individual makes the judgement (Wigton, 1996). Thompson et al. (2009) used a double system design to compare nurses’ (n=245) judgements of the risk of a patient experiencing a critical event, to a modified early warning score (MEWS) of risk. The MEWS is a mechanical judgement based on clinical cues, with a score greater than 5 used to determine scenarios where the patient should be classified as at risk. Nurses had to judge 50 patient case scenarios, and make three judgements. They
were asked to judge if the patient was at risk of a critical event (Yes or No), if they would take action of informing a colleague (Yes or No) and to judge the likelihood of a critical event on a scale (0 – 100). Results reported that on average, 30 of the scenarios were judged at risk. This represented an overestimation when compared to the 18 classified as “at risk” based on MEWS values.

This approach is valuable as it provides a means of comparing different groups of individuals. For instance, Thompson et al. (2009) compared the achievement of nurses with and without critical care experience, and identified a stronger correlation with the MEWS values for the nurses with critical care experience. This can be used as a basis for determining characteristics associated with effective decision making.

In the context of financial elder abuse decision making, there is currently no distal criterion that could be used to meaningfully assess if financial abuse has occurred. Where this knowledge does not exist, a single system design study can provide an idea of the environment/judgement relationship, providing the basis for follow-up research from a double-system perspective. For instance, Harries and Gilhooly (2003) conducted research to determine how cues should be weighted in the prioritisation of referrals by occupational therapists. This information was used in subsequent research (Harries & Gilhooly, 2011) to assess the impact of a training tool on occupational therapy students’ referral prioritisation policies. The optimal cue weighting information identified in the initial research was used as the basis for comparing the effects of training on achievement; and how students’ prioritisation ratings compared to the identified experts.

Hammond developed cognitive continuum theory to link the ideas of the judgement and decision making research approaches (Cooksey, 1996). This theory focused on the interplay between the cognitive strategy adopted and the specific nature of the task. Cooksey (1996) outlines the key principles of cognitive continuum theory, which is based around the idea that intuitive approaches such as heuristics and analytic approaches such as judgement analysis should not be thought of as separate and opposite, but rather at different ends of a continuum. In other words, an individual’s cognitive approach to a task may be more intuitive than analytic, but it can still hold analytic elements (referred to as a quasi-rationality approach). The basis of cognitive continuum theory in terms of intuitive and analytic approaches being on the same scale can also be linked back to Brunswik, who discussed the two approaches in terms of balance (Hammond, 1996).

Another consideration was the impact that the task itself might have. The idea of a task continuum (Hammond, 1996) is that as well as having a continuum in terms of cognitive approaches different tasks themselves suit different approaches. Furthermore, this is not a static process as over time people adopt different cognitive styles when faced with the same task; perhaps when performance was not as good as expected.

Overall it seems that Hammond’s cognitive and task continuums (1996) provide a clear way of investigating the impact and interplay of both intuitive and analytic cognition. Using this representation, it is therefore possible to consider if certain aspects of a task require an intuitive approach, whereas others require more analytical thinking. Given that social professionals in particular have formal guidelines regarding their responsibilities in cases such as elder abuse, it is likely that certain aspects of the process will be analytic. The value of applying judgement analysis methodology is that it can be determined how different pieces of information are used, rather than identifying a list of common indicators of abuse.

Holzworth (2001) outlines some of the key insights from judgement analysis research into how people make judgements. The first observation was that people use fewer cues and less information than they think they do when making a judgement. This idea draws parallels with the actuarial versus clinical judgement debate, which questions the added value of more labour intensive clinical judgements if actuarial judgements are comparable in terms of effectiveness. This point also highlights the importance of study methodology and whether the self-report approach can accurately capture decision making if people are not aware of how they use information.

The second key message was that if multiple participants are asked to judge the same situation there is likely to be a high level of inconsistency between the judgement policies they apply. Thirdly, Holzworth (2001) highlights the controversy over how aware people are of the policies they apply when making judgements. This again raises methodological concerns as to how decision making can ever be
captured. Evaluation of social judgement theory highlights the importance of considering environmental variation via a representative design as well as using statistical techniques such as regression analysis both to model and predict behaviour. The potential that judgement analysis would allow to balance both of these angles is interesting from the perspective of decision making in cases of financial abuse as it would capture the varied environment in which financial abuse takes place, as well as producing something tested which could ultimately be used to support decision making.

Summary

- Research needs to be undertaken to explore decision making in the context of financial elder abuse. This is important to determine how professionals identify that financial abuse is occurring, the decisions that have to be made in such cases and factors that can help or hinder decision making.

- This paper considered a range of judgement and decision making theories and approaches including utility theory, actuarial judgements, dual process models, heuristics and biases and social judgement theory. The normative, descriptive and prescriptive application of these theories and approaches to the study of decision making in relation to financial elder abuse was discussed.

- An additional consideration is how the theoretical underpinning of the research impacts upon the methodology chosen. The theoretical overview segment of this working paper indicates that judgement analysis methodology would be useful in context of research on financial elder abuse.

- After detailed information from participants about their experience of decision making is obtained, the relationship between decision making cues and judgements can then be examined in more detail by the application of judgement analysis techniques.

References


Wigton, R. S. (2008). What do the theories of egon brunswik have to say to medical education? Advances in Health Sciences Education, 13(1), 109-121.
This Working Paper reviews the literature related to different judgement and decision making theories and approaches, evaluating their potential application for researching decision making in cases of suspected financial elder abuse. To begin, key debates in the literature are introduced to consider the implications of these issues for the study of decision making in relation to financial elder abuse. The potential application of various judgement and decision making approaches to financial elder abuse research is then critiqued.

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