Is deck C an advantageous deck in the Iowa Gambling Task?
SGT 研究團隊 IGT 系列論文引用狀況

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Link: http://www.behavioralandbrainfunctions.com/content/3/1/37

以下所整理的資料（「引用內容」）是依據引用「Is deck C an advantageous deck in the Iowa Gambling Task?」論文內文中所做的敘述，文內同時引用到本團隊其他相關文章則一併陳列（所引用文章列於「引用本團隊論文」），論文來源列於「參考文獻出處」並同時提供部分訊息（網址聯結）。期刊文章、專書與碩博士論文之引用來源主要來自於Google Scholar(引用時間點為2014/01/14)、「其他」則來自個人部落格。本文所呈現之論文引用不包含自引，本資料僅供參考相關文獻陸續整理修訂中。

「Deck B」、「Deck C」、「SGT」、「再驗 SGT」及「IGT-fMRI」分別代表以下五篇論文：


論文引用狀況資料呈現方式分兩部分：
一、論文引用文章，二、文章引用具體內容
一、論文引用文章

期刊與研討會論文


專書
Magda Osman. (2011) *The Role of Feedback in Decision Making.* In Abdul Qayyum Rana (Eds.), *Diagnosis and Treatment of Parkinson’s Disease.* Publisher: *InTech.*

碩博士論文
林純竹 (2010)。嗎啡用藥與額葉執行功能之關聯性研究（未出版之碩士論文）。私立輔仁大學，台北市。

其他

二、文章引用具體內容（按最新年代依序呈現）

*期刊與研討會論文*

| Arelas 進行文獻回顧，引用本團隊在「受試者偏好贏錢頻率高的牌」之發現 |
|-----------------|-------------------------------------------------|
| 引用內容 | “A aleatorização da disposição espacial dos baralhos foi adotada por vários estudos (e.g. Cella, Dymond, Cooper, & Turnbull, 2007; Chiu & Lin, 2007; Crone & van der Molen, 2004; Dretsch & Tipples, 2008; Garon & Moore, 2004; Geurts, van der Oord, & Crone 2006; Lin, Chiu, Lee, & Hsieh, 2007; Pecchinenda, Dretsch, & Chapman, 2006).” (p. 202) |
| 引用與本團隊論文 | “Alguns participantes parecem valorizar mais a frequência de resultados positivos do que as quantias de dinheiro (ganho ou perdido), por isso preferem os baralhos B e D”(p. 205) |

**Reference Source**


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**Overman and Pierce** 認為「女性受試者偏好高頻率贏錢的牌」

"Our results add another twist to this analysis: females drive the preference for high-frequency-of-gain cards. There are additional studies that report “high frequency of gain” preference (Chiu and Lin, 2007; Lin et al., 2007; Chiu et al., 2008). However, the data in these papers are difficult to interpret for two reasons. First, none of the reports analyzed/reported effects of gender. Secondly, these authors employ task versions that differ significantly from the mainstream IGT procedures. For example, in the IGT modification used by Chiu et al. (2008), the schedule of wins and losses repeats every five trials for each deck.” (p. 13)

**Reference Source**


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**Seeley等人在研究中提到本團隊「輸贏頻率及分析方法的影響」**

“It is an extensively used tool to identify the neural processes underlying decision making (Bechara, Damasio, Tranel, & Anderson, 1998; Bechara, Damasio, Damasio, & Lee, 1999; Bechara et al., 2001; Lin, Chiu, Cheng, & Hsieh, 2008) and to assess decision making impairments in many clinical populations.”

“However, a growing body of literature suggests that this simple metricas led to an oversimplified understanding of the decision making process (Chiu & Lin, 2007; Chiu et al., 2008; Lin,Chiu, Lee, & Hsieh, 2007; Lin, Chiu, & Huang, 2009; North & O’Carroll, 2001; Stocco, Fum, & Napoli, 2009; Yechiam, Stout, Busemeyer, Rock, & Finn, 2005).”

“Numerous studies have evaluated the original structure and propose that loss frequency can predict deck choice, rather than OEV (Chiu et al., 2008; Chiu & Lin, 2007; Lin et al., 2007).”

“It has previously been noted that decision makers are sensitive to decks with high frequency of loss in
the IGT (Chiu et al., 2008; Chiu & Lin, 2007; Lin et al., 2007)"

引用本團隊論文


参考文獻出處

Singh 在研究中引用受試者偏好高風險頻率牌的現象
"This preference is incompatible with the SMH–IGT framework as demonstrated, for example, by the finding that deck B was considered “risky” on the basis of the intertemporal attribute and is preferred to other “safe” decks (Lin et al., 2007), where as deck C that was considered “safe” is avoided by healthy participants (Chiu and Lin, 2007)." (p.2)

“Decision making in the IGT is observed to be governed by frequency of reinforcement rather than the intertemporal attribute in several cultural contexts including Taiwan (Chiu and Lin, 2007; Lin et al., 2007; Chiu et al., 2008), Iran (Ekhtiari et al., 2009), Brazil (Schneider et al., 2010), and India (Singh and Khan, 2008).” (p.6)

引用本團隊論文


參考文獻出處
“However, findings of several studies go against this assumption (Caroselli, Hiscock, Scheibel, & Ingram, 2006; Chiu & Lin, 2007; Chiu et al., 2008; Dunn, Dalgleish, & Lawrence, 2006; MacPherson, Phillips, & Della Sala, 2002; Lin, Chiu, Lee, & Hsieh, 2007; Wilder, Weinberger, & Goldberg, 1998; Yechiam & Busemeyer, 2005).” (p.9)

“Yet, the IGT has been confronted by a substantial number of criticism (Chiu & Lin, 2007; Chiu et al., 2008; Dunn et al., 2006; Lin et al., 2007; Steingroever et al., 2013).” (p.25~26)

Reference
引用本團隊論文

参考文獻出處

**Horstmann 等人在其發展的研究中，引用本團隊在「頻率」上的發現**

**Substantial critique has been raised regarding the general assumptions on IGT performance (Dunn et al., 2006; Fernie and Tunney, 2006; Chiu and Lin, 2007; Lin et al., 2007). Several studies have shown that normal decision makers do not learn to prefer the two advantageous decks, but rather prefer one of the advantageous (deck D) and one of the disadvantageous (deck B) decks (e.g., Wilder et al., 1998; O’Carroll and Papps, 2003; Rodríguez-Sánchez et al., 2005; Toplak et al., 2005; Fernie and Tunney, 2006; Martino et al., 2007; Caroselli et al., 2010; Fridberg et al., 2010). Attention to long-term outcome alone cannot explain such choice behavior. Consequently, the validity of the simple difference score, taking into account long-term outcome only, has recently been ques-tioned, as it may hide effects pertaining to differences between decks with identical expected long-term outcome (Chiu and Lin, 2007; Lin et al., 2007).” (Horstmann et al., p.1-2)**

“With in the decks with high-frequency gains, we observed after an initial exploration phase a comparable choice pattern for decks B and D, but with in the low-frequency gain decks a clear preference for deck C over deck A. This corroborates findings by Lin et al.(2007), who observed the same pattern in a modified version of the IGT that directly contrasts deck A with C and deck B with D. The authors suggest that the clear preference for deck C over deck A in the original version of the task might be due to the fact that despite the seemingly identical gain/loss frequency, deck C in fact contains fewer trials with net losses than deck A. In ours tudy, participants experience for 10 selections from deck A five net gains ($100 gains−$0 loss) and five net losses ($100 gains−$150 . . $.350 losses). In contrast, for 10 selections from deck C participants experience five net gains ($50gain−$0 loss) and five stand offs ($50gain−$50 loss). Thus, while for both card decks participants are shown on the screen 5 losses in10 trials, the frequency of netlosses differs between these two decks. Such a distinction does not exist for decks B and D, as for both decks, comparable to deck A, every trial associated with a loss also results in a netloss. Chiu and Lin(2007) modified the task in
such a way that the frequency of net losses was identical between decks A and C. After his modification, they no longer observed differences between preferences for deck A and C. Hence, it is likely that the observed effects in the current study hinge on the difference in frequency of net losses between decks A and C. But, importantly, note that deck A and C do not differ regarding their gain frequency.” (Horstmann et al., p.7)

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Visagan 等人在其 IGT 的相關研究引用本團隊「Deck C 與 Deck B」的發現

“As others attempted to replicate this work, alternative interpretations emerged of what constitutes and may impact advantageous decision making on the IGT. For example, a series of studies described the tendency for individuals to choose from Deck B compared with any other deck (Dunn, Dalgleish, & Lawrence, 2006; Lin, Chiu, Lee, & Hsieh, 2007). Thus, healthy control participants appeared unable to inhibit their preference for the high-frequency gains of this deck despite its bad final outcomes (the prominent Deck B phenomenon). In contrast, other investigators describe a sunken Deck C phenomenon in which healthy control participants no longer favor Deck C as an advantageous deck when the gain–loss frequency of this deck is experimentally altered to be similar to that of other decks (e.g., Deck A; Chiu & Lin, 2007). Although few reports corroborate these findings (Maia & McClelland, 2004) and modifications to the IGT may contribute to particular decision-making strategies in healthy adults, these studies emphasized the impact of gain–loss frequency in contrast to overall gain–loss outcome on individual deck preferences during the IGT; they did not, however, emphasize cognitive or motivational processing.” (Visagan et al, 2011, p.456)

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<td>Visagan, Ravindran; Xiang, Ally; Lamar, Melissa (2011) <em>Comparison of deck-and trial-based</em></td>
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The somatic marker hypothesis (SMH) states that emotions are indispensable to long-term decision making (Damasio, 1994). Support for the hypothesis comes from observing healthy participants' ability to make long-term advantageous decisions on a task called the Iowa gambling task (IGT; Bechara et al., 1994). In order to rule out reward and punishment sensitivity as an alternative explanation for decision making on the task, Bechara et al. (2000b) compared reward and punishment variants of the IGT to demonstrate long-term advantageous decision making irrespective of the immediate reward and punishment frame of the IGT. However, in the most examined reward variant, the magnitude (Tomb et al., 2002; van den Bos et al., 2006) and frequency of immediate reward and punishment (Chiu and Lin, 2007; Lin et al., 2007; Chiu et al., 2008) continue to confound long-term decision making in the IGT. (Singh and Khan, p.1)

"The on-the-surface difference of greater long-term advantageous decision making in the punishment variant observed in the original study (Bechara et al., 2002) had led to the present investigation. As suspected, the number of participants making more long-term advantageous decisions in the punishment variant was higher (more than 60%) than in the reward variant. The results point out a difference in long-term decision making in the reward and punishment variants, contradicting the claim that IGT decision making is immune to reward and punishment orientation (Bechara et al., 1994, 2000b). The role of rewards and punishments has been a contentious issue in IGT studies. For example, contrary to the SMH-IGT assumption, the learning of rewards and punishments (Rolls et al., 1994), knowledge of rewards and punishments (Maia and McClelland, 2004), immediate rewards and punishments (van den Bos et al., 2006), and frequency of immediate rewards and punishments (Chiu and Lin, 2007; Lin et al., 2007; Chiu et al., 2008) are believed to confound long-term decision making in the reward variant of the IGT, weakening the assertion that IGT decision making is immune to reward and punishment sensitivity. The present results obtained from comparing both the variants of the IGT suggest that reward and punishment has an effect on long-term decision making in the IGT in the form of the variant type (reward and punishment), order type (reward followed by punishment and vice versa), and instruction type (either approach reward or avoid punishment, and approach reward while avoiding punishment)." (Singh and Khan, p.4)

The results underscore the role of socio-economic and cultural factors in understanding decision making in the IGT. Inconsistent with the IGT assumptions, frequencies of immediate reward and
punishment rather than the inter-temporal nature of choices were determinants of IGT decision making in Taiwan (Chiu and Lin, 2007, Lin et al., 2007; Chiu et al., 2008), Iran (Ekhtiari et al., 2009), and Brazil (Bakos et al., 2010). While it is assumed that risk is perceived in terms of inter-temporality and risky decision making is manifested in the tradeoff between an immediate versus a delayed outcome (irrespective of reward or punishment as an outcome) in the IGT, socio-economic, and cultural differences in the IGT suggest an alternative definition of risk and risky decision making in the IGT. When socio-economic and cultural differences are investigated as a part of the decision neuroscience studies, it would benefit areas such as cultural neuroscience, and social neuroscience, by helping us understand the link between culture-specific decision making behavior and brain functioning.” (Singh and Khan, p.4)

引用本团队论文

参考文献

網址聯結

Steingroever等人引用本团队在「频率」上的发现
“Over the last two decades, the IGT has become what is arguably the most popular neuropsychological paradigm to measure decision-making deficits in clinical populations (Toplak, Sorge, Benoit, West, & Stanovich, 2010). To illustrate, a search for “Iowa gambling task” yields about 178,000 hits on Google, and about 3,640 hits on Google Scholar. Prior to 2005, the IGT had already been used in almost 100 neurological and psychiatric studies (Bowman, Evans, & Turnbull, 2005). Studies that use the IGT have involved a broad variety of clinical populations such as patients with vmPFC lesions (Bechara, Damasio, Tranel, & Anderson, 1998; Bechara et al., 1999, 2000), pathological gambling (Cavedini, Riboldi, Keller, D’Annucci, & Bellodi, 2002), obsessive-compulsive disorder (Cavedini, Riboldi, D’Annucci, et al., 2002), psychopathic tendencies (Blair, Colledge, & Mitchell, 2001), schizophrenia (Bark, Dieckmann, Bogerts, & Northoff, 2005; Martino, Bacay, Batman, & Allegri, 2007), cocaine users (Stout, Busemeyer, Lin, Grant, & Bonson, 2004), traffic offenders (Lev, Hershkovitz, & Yechiam, 2008), and inmates (Yechiam, Kanz, et al., 2008). The traditional way to compare performance of a clinical group to that of a control group is based either
on the overall proportion of choices from the good decks, or on a difference score between the overall proportion of choices from the good and bad decks. Note that these procedures collapse choice proportions over the two good decks and over the two bad decks, leading to a loss of potentially diagnostic information (Chiu & Lin, 2007; Dunn et al., 2006; Lin, Chiu, Lee, & Hsieh, 2007), a point to which we will return later." (Steingroever et al., p.2-3)

“Studies applying the Soochow gambling task (SGT)—a variation of the IGT in which both good options yield high-frequent losses and both bad options yield low-frequent losses—show that healthy participants prefer the bad options over the good options, indicating again that healthy participants base their choices on the frequency of losses (Ahn, Busemeyer, Wagenmakers, & Stout, 2008; Chiu et al., 2008). The frequency-of-losses effect has also been found in a different version of the IGT in which Chiu and Lin (2007) established a higher contrast between rewards and losses on each trial by increasing their magnitude while keeping the traditional long-term outcomes (i.e., −250 for 10 cards from the bad decks, and +250 for 10 cards from the good decks). Chiu and Lin (2007) conclude that “the IGT contains some redundant procedures, confounding features, and problems in interpretation” (p. 9) and that “these problems should be refined to make the IGT a truly useful assessment tool” (p. 9). Further evidence for the frequency-of-losses effect in healthy participants has been reported by Huizenga, Crone, and Jansen (2007) who showed that the dominant IGT strategy in the considered age groups ranging from 6 to 25 years is to focus on the frequency of losses, a dominance that increases with age.

It is important to note that for many published IGT studies, the selection proportions for the two good decks and the two bad decks have been collapsed. This presentation method obscures the impact of the frequency-of-losses effect (Chiu & Lin, 2007; Dunn et al., 2006; Lin et al., 2007). In this article we aim to overcome this complication by reviewing the literature that does contain information from each individual deck, by re-analyzing raw data of previous IGT studies that we received upon request, and by collecting data from a relatively large sample of healthy participants.” (Steingroever et al., p.8-9)

“This article focused on performance of healthy participants on the IGT. Two literature reviews and the analysis of eight data sets together challenge the assumptions of Bechara et al. (1994) about the IGT choice behavior of healthy participants. Our findings reveal the presence of a frequency-of-losses effect in healthy participants, as already indicated by many studies (Ahn et al., 2008; Caroselli et al., 2006; Chiu & Lin, 2007; Chiu et al., 2008; Dunn et al., 2006; Huizenga et al., 2007; MacPherson et al., 2002; Lin et al., 2007; Wilder et al., 1998; Yechiam & Busemeyer, 2005). In addition, we showed that performance of healthy participants is characterized by considerable variability, both across groups and across participants within the same study, and that healthy participants fail to progress from an initial stage of exploration to a later stage of exploitation. These findings clearly contradict the common belief that “most healthy participants sample cards from each deck, and after about 40 or 50 selections are fairly good at sticking to the good decks”. 6” (Steingroever et al., p.23)
“Our results showed that many healthy participants perform poorly on the IGT, begging the question as to why they do not learn to prefer both good decks over both bad decks. Altogether, it seems that many participants find it particularly difficult to figure out that deck B is a bad deck—after all, deck B yields high immediate, constant rewards. One explanation for why healthy participants do not learn to prefer both good decks over deck B is related to the payoff scheme as developed by Bechara et al. (1994). As first pointed out by Lin et al. (2007), cards from deck C never yield a net loss, but cards from deck A do. This goes against Bechara et al. (1994)’s idea of designing one good deck and one bad deck with high-frequent losses and suggests that the good decks and bad decks are pseudo-balanced. Decks B, C, and D are more similar than expected because they yield either no or very few net losses, whereas deck A yields frequent and big net losses and is thus the only deck that clearly differs from the others with respect to the net outcomes. Another explanation is that the payoff scheme encourages participants to only focus on the immediate losses; the losses vary but the immediate rewards are completely predictable as they are constant across trials for each deck. The predictability of immediate rewards also contradicts Bechara et al. (1994)’s intention of “uncertainty of reward and punishment” (p. 8).” (Steingroever et al., p.23-24)


Hawthorne 在其 IGT 的相關研究中多次引用「奇異 B」和「沉沒 C」的發現，並且質疑原始 IGT 測量的本質

引用內容

"Perhaps the most intriguing findings of this study came from examining the changes that took place within the course of playing the IGT. Lin, Chiu, Lee and Hsieh (2007) noted that studies using the IGT typically use an advantageous-disadvantageous comparison that may be masking some important dynamics that occur as participants proceed through the task. Indeed, research has found that, contrary to expectation, deck B (disadvantageous) is chosen most often (Lin et al., 2007) while deck C (advantageous) is often avoided (Chiu & Lin, 2007). Our results support the "prominent deck B phenomenon" (Lin et al., 2007, p.23.) but are inconsistent with the “sunken deck C phenomenon” (Chiu & Lin, 2007, p.42). In the present study, participants did choose deck B more often than any other deck, but deck C (advantageous) was also frequently chosen. Additionally, deck A (disadvantageous) was the sunken deck. However, these results also indicate that to fully understand the nature of IGT performance, the patterns of choices within the task need to be more carefully studied. (Melissa et al.,2011, p.12)

In summary, this study examined the effects of both a cognitive prime and variation in the level of detail given in the instructions on IGT performance. The results indicated that the cognitive manipulations had no impact on the overall IGT performance. Although these findings support the concept of the IGT as a measure of implicit emotional learning, further analysis of learning patterns within the task supported Lin, Chiu, Lee and Hsieh’s (2007) contention that there is more to the IGT story than first believed. Consequently, more research is needed to understand the true nature of IGT performance.” (Melissa et al.,2011, p.13)

引用本團隊論文


参考文獻

Visagan等人在其IGT的相關研究引用本團隊「Deck C與Deck B」的發現

引用內容
“for example, a series of studies described the tendency for individuals to choose from Deck B compared with any other deck (Dunn, Dalgleish, & Lawrence, 2006; Lin, Chiu, Lee, & Hsieh, 2007). Thus, healthy control participants appeared unable to inhibit their preference for the high-frequency gains of this deck despite its bad final outcomes (the prominent Deck B phenomenon). In contrast, other investigators describe a sunken Deck C phenomenon in which healthy control participants no longer favor Deck C as an advantageous deck when the gain–loss frequency of this deck is experimentally altered to be similar to that of other decks (e.g., Deck A; Chiu & Lin, 2007). Although few reports corroborate these findings (Maia & McClelland, 2004) and modifications to the IGT may contribute to particular decision-making strategies in healthy adults, these studies emphasized the impact of gain–loss frequency in contrast to overall gain–loss outcome on individual deck preferences during the IGT; they did not, however, emphasize cognitive or motivational processing.” (Visagan et al, 2011, p.2)

引用本團隊論文

參考文獻出處

Mörsen等人在其病態賭博的相關研究引用本團隊「Deck C」的發現

引用內容
仍未取得正式文章

引用本團隊論文

參考
Chantal Patricia Mörsen¹, Andreas Heinz¹, Mira Bühler², Karl Mann (2011) Glücksspiel im Gehirn:
巴西團隊認為IGT的變異可能來自文化差異，並引用「Deck B 與 Deck C」的研究

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"Some investigations have indicated confounding factors affecting the performance of different cultural groups on the task, but still unclear is whether these differences are related to cultural variables. For example, one study found that normal Taiwanese subjects prefer cards from deck “B” and dislike cards from deck “C” of the IGT (Chiu & Lin, 2007; Lin, Chiu, Lee, & Hsieh, 2007). Therefore, more research needs to be conducted to investigate the influence of cultural and sociodemographic factors on individuals’ performance on this task.” (Bakos et al, 2010, p.102)
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參考文獻  

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<td>&quot;Some investigations have indicated confounding factors affecting the performance of different cultural groups on the task, but still unclear is whether these differences are related to cultural variables. For example, one study found that normal Taiwanese subjects prefer cards from deck “B” and dislike cards from deck “C” of the IGT (Chiu &amp; Lin, 2007; Lin, Chiu, Lee, &amp; Hsieh, 2007). Therefore, more research needs to be conducted to investigate the influence of cultural and sociodemographic factors on individuals’ performance on this task.” (Bakos et al, 2010, p.102)</td>
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<th>對IGT在大量臨床心理疾病研究上的回顧文獻，提及輸贏頻率時，本團隊的「Deck B, Deck C及SGT」三篇文章皆被引用。</th>
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<td>“Several articles have critiqued the methods, theory, and mechanisms that underlie IGT performance, and other methods have been developed in order to balance gain–loss frequency in the IGT (Chiu &amp; Lin, 2007; Chiu et al., 2008; Lin, Chiu, Lee, &amp; Hsieh, 2007).” (Toplak et al, 2010, p.564)</td>
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| 引用 | “An alternative explanatory framework, the FOG model suggests that computational cognitive processes rather than “gut feelings” may account for healthy individual’s performance during the IGT (Chiu & Lin, 2007; Chiu et al., 2008; Lin, Chiu, Lee, & Hsieh, 2007).” (Casey et al., 2010, p. 47) |
| | http://psycnet.apa.org/journals/npe/3/1/ |

| 引用 | “While the IGT provides information on decision making under uncertain reward and loss contingencies, interpretation of task performance is somewhat hindered by the complexity of the task. For example, the decks in the IGT not only differ in terms of longterm outcome (Lin et al., 2007), but |
also in terms of punishment frequency: each pair of advantageous and disadvantageous decks consists of one deck which results in small frequent losses and one deck which results in high but infrequent losses. Recent studies have reported that these differences in frequency of punishment may be more important for choice behaviour in healthy subjects than the focus on long-term profits as suggested by Bechara and colleagues (Chiu and Lin, 2007; Lin et al., 2007).” (van Holst et al, 2010, p.100)

引用本團隊論文

參考文獻出處

印第安納團隊一篇 IGT-fMRI 的研究，引用本團隊「Deck B, Deck C, SGT 及 IGT-fMRI」的文章
引用內容
“Activations have been identified in the AI during decision making (Lin, Chiu, Cheng, & Hsieh, 2008) and for bad decisions compared with good decisions (Lawrence, Jol-lant, O’Daly, Zelaya, & Phillips, 2009), and AI activation has correlated with predicted risk and the error in those predictions (Preuschoff et al., 2008).” (Krawitz et al, 2010,p.392-393)

“In the ACC, as in the AI, activations have been identified during decision making (Lin et al., 2008) and for bad decisions compared with good decisions (Fukui et al., 2005; Lawrence et al., 2009).” (Krawitz et al, 2010,p.393)

“The IGT is a model of real-world decision making under uncertainty (Bechara, Damasio, Tranel, & Damasio, 1997). Despite being criticized on various counts (Chiu & Lin, 2007; Chiu et al., 2008; Dunn, Dalgleish, & Lawrence, 2006; Lin, Chiu, Lee, & Hsieh, 2007), the IGT has been used extensively to study and model decision making in both clinical (e.g., Bechara et al., 1994; Bechara et al., 2001) and nonclinical (e.g., Suhr & Tsanadis, 2007; Wetzels, Vandekerkhove, Taerlinckx, & Wagenmakers, 2010) populations (for a review, see Vorhold, 2008) and in functional neuroimaging studies (Fukui et al., 2005; Lawrence et al., 2009; Lin et al., 2008; Northoff et al., 2006).” (Krawitz et al, 2010,p.394)

“The IGT decks vary along multiple dimensions of both probability and magnitude of reward and
punishment (Chiu et al., 2008; Dunn et al., 2006). In particular, the bad decks are riskier whether
risk is defined as the possibility of adverse outcomes or as variance.” (Krawitz et al., 2010, p.394)

“We have ruled out a number of alternative explanations for the risk effects and heightened-risk
effects. We list them here, with details in the supplemental text. (1) There is no “prominent deck B”
phenomenon (Lin et al., 2007) hiding a preference for the net-loss/rare-loss deck, so we are justified in
grouping the good decks and bad decks together to increase statistical power and simplify the
analysis.” (Krawitz et al., 2010, p.401)

引用本團隊論文

Chiu, Lin, Huang, Lin, Lee, Hsieh. (2008). Immediate gain is long-term loss: are there foresighted

Task? Behavioral and Brain Functions, 3:16.

Neuroscience, 9:72

引用文獻出處
Krawitz, A., Fukunaga, R., Brown, J. (2010) Anterior insula activity predicts the influence of
positively framed messages on decision making. Cognitive, Affective, & Behavioral Neuroscience,
10 (3), 392-405.

網址連結
http://www.springerlink.com/content/q3t82513k5557t88/

一篇直接探究IGT低頻率大輸的B牌之文章，引用本團隊在「Deck B與Deck C」的結果

引用內容
“...Recently Lin et al. (2007) tested IGT preferences using two simplified versions of the task. ........
Prominence of decks B0 and D0 is so robust that it was unaffected by manipulation of instruction
(suggestive versus non-suggestive instructions) and reinforcement type (real versus facsimile
reinforcement) (Fernie and Tunney 2006). An investigation similar to that of Lin et al. (2007) was
undertaken to find out if deck C0 is truly advantageous perSMH (Chiu and Lin 2007)....” (Singh &
Khan, 2008, p.51)

引用本團隊論文

Task? Behavioral and Brain Functions, 3:16.

http://www.springerlink.com/content/427268710817x438/

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<table>
<thead>
<tr>
<th>González 等人在其 IGT 的相關研究引用本團隊「Deck C 與 Deck B」的發現</th>
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<td>“Sin embargo, diversos autores han puesto en duda la centralidad otorgada a estos marcadores emocionales en el desempeño del IGT (Barry y Petry, 2008; Chiu y Lin, 2007; Dunn et al., 2006; Maia y McClelland, 2005, MartinezSelva, et al., 2006) ” (González et al.,2010,p.38)</td>
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<td>“Sin embargo, autores recientes postulan que los individuos orientan sus elecciones en función de la frecuencia de castigos presentes en los mazos, más que en consideración del beneficio final que los mismos representan (Lin, Chiu, Lee y Hsieh, 2004). En concordancia con estas últimas investigaciones, como pudimos observar a través del Gráfico 2, los mazos más seleccionados fueron aquellos que otorgaban menor frecuencia de pérdidas (B y D) y dentro de aquellos que presentaban mayor cantidad de castigos, los individuos prefirieron el mazo C antes que el A. Esta preferencia ha sido explicada por el porcentaje de ganancias y pérdidas que ambos mazos proporcionan cada 40 cartas en el IGT (Chiu y Lin, 2007). Como se puede ver a través de la Tabla 3, el mazo “C” posee menor cantidad de pérdidas que el mazo “A”, ya que contiene un 25% de opciones que no ofrecen ni ganancias ni pérdidas (por ejemplo, ganar $50 y perder $50)” (González et al.,2010,p.40)</td>
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<td>Influencia de Variables Cognitivas en el Iowa Gambling Task</td>
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引文內容 "Given this fact，it may be the case that decision makers focus on the gain-loss frequency，rather than learning to make decisions that will contribute to a good final outcome" （Chui & Lin，2007）。（Magda Osman，2010，p.122）


參考文獻 國外期刊 Magda Osman. The Role of Feedback in Decision Making. Diagnosis and Treatment of Parkinson’s Disease


碩博士論文

補大臨床心理所碩士論文多處引用「Deck C，SGT 及 IGT-fMRI」的相關結果

引用內容 “愛荷華賭博作業（IGT）爲混合偶然率派典（mixed contingency paradigm），要求受試者判斷立即回饋及長期損失的最佳利益，測驗操弄了賺賠率的高低及長遠結果的好與壞兩個變項（Chiu & Lin，2007），本測驗假設，受試作答時會投入測驗中，並引發情緒的體體印記假說（somatic marker hypothesis），在正常情況下，對好牌（C+D）的反應總數應大於壞牌的反應總數（A+B）（Bechara，Damasio，Damasio，& Anderson，1995）。”（林純竹，2010，頁14）

“過去對於愛荷華賭博作業（IGT）反應結果，大多以好牌反應數與壞牌反應數指標來看，但若將四張卡片分開看時，則可能會出現違反原先假設的現象，邱耀初研究團隊針對四張卡的反應，分別以賺賠率相等的兩種卡（即A和C卡，B和D卡）進行研究，在AC卡情境中，受試者隨著反應數增加，傾向於選擇較多的C卡；而在BD卡情境中，受試者隨反應數增加，BD卡選擇上無顯著差異。且當以結束時好壞牌之區別來看時，可發現有較多的受試者傾向於選擇B卡，因此顯示B卡對於受試者而言，也未見不是一個好的選擇。研究指出（Chiu & Lin，2007; O’Carroll & Papps，2003），即使是健康的受試者，也可能出現較多的B卡反應，而此現象則稱為「prominent deck B現象」。”（林純竹，2010，頁14）

邱耀初研究團隊進一步探討賭博作業反應時，影響受試者決策的因素，發現即使是健康的受試者，在研究中仍出現短視近利的情形，決策明顯受到當下獲得金額的高低，容易選擇常賺且贏多的卡，顯示賺賠率在決策時扮演重要角色。而受試也會出現一些反映模式，如反應後若賺錢，則持續原反應，若賠錢則隨機變換其他選擇(Chiu, et al., 2008)。因此，在研究中，除了原先以總和方式比較好壞牌反應數外，另需分開探討四張卡的反應數差異，並由不同區組的反應中，檢視受試者反應策略的使用及變化。（林純竹, 2010, 頁15）

由腦造影研究顯示受試者反應過程中會引發額葉某些特定腦區激發，如額葉內側(Ernst, et al., 2003; Fukai, Murai, Fukuyama, Hayashi, & Hanakawa, 2005; Northoff, et al., 2006; Tucker, et al., 2004)、眼眶皮質區(Bolla, et al., 2003; Bolla, Eldreth, Matochik, & Cadet, 2005; Ernst, et al., 2002)、背側前額葉皮質區(Adinoff, et al., 2003; Bolla, et al., 2003; Bolla, et al., 2005; Ernst, et al., 2002; Ernst, et al., 2003)，但目前尚未能針對作業指標與腦區激活性有所定論(Lin, Chiu, Cheng, & Hsieh, 2008)。（林純竹, 2010, 頁15）


“呈現「prominent B現象」，顯示不論一般人或用藥者，皆有B卡反應數偏高的情形，因此與Bechara原先對賭博作業假設相同，儘管一般受試者，也可能有較多的B卡反應(Chiu & Lin, 2007; Mintzer & Stitzer, 2002)；由C卡反應偏好明顯多於A卡，也可見「sunken deck C」的情況，顯示在原愛荷華賭博作業中，假設AC兩卡「賺賠率」相同情況中，受試者敏感覺察到C卡為較佳的反應，此與過去研究結果相符(Chiu & Lin, 2007; Mintzer & Stitzer, 2002)”（林純竹, 2010, 頁62）

引用本團隊論文


| 參考文獻出處 | 林純竹, (2010) 嗎啡用藥與額葉執行功能之關聯性研究。天主教輔仁大學臨床心理學系碩士班碩士論文。台北，輔大。
| 網址聯結 | http://ndltd.ncl.edu.tw/cgi-bin/gs32/gsweb.cgi/login?o=dnclcdr&s=id=%22098FJU082107%22.&searchmode=basic |

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