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An independent academic psychologist, based in England, who has written extensively on different areas of psychology with an emphasis on the critical stance towards traditional ideas.

A complete listing of his writings at http://psychologywritings.synthasite.com/ and http://kmbpsychology.jottit.com.

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1. "PREGNANCY BRAIN"

1.1. PREGNANCY BRAIN AND BABY BRAIN

Many women [1] report deficits in memory and cognitive abilities during pregnancy [2], leading to the idea of "pregnancy brain" [3], and when this continues post-natally to "baby brain" [4]. This idea has gained popularity in the media. For example, on a US talk-show in 2007, pregnancy expert Heidi Murkoff stated authoritatively that forgetfulness in pregnancy was "a legitimate physiological symptom of pregnancy with actual biological triggers" (quoted in Hurt 2011). While Ellison (2005) admitted: "Becoming a mother made me subject to a modern affliction called Mommy Brain - which, like 'senior moment' is a cheery synonym for abrupt mental decline". She went on: "Mommy Brain" "summons the image of a ditsy pregnant woman who weeps at tissue commercials, or a frazzled mom with nothing in her head but carpool schedules and grocery lists" (quoted in Hurt 2011).

Controlled studies have not supported these ideas, in the main (Moyer 2015) (table 1.1) [5]. For example, Logan et al (2014) tested twenty-one women in the third trimester of pregnancy and three-six months after birth, and compared them to twenty-one never-pregnant controls [6].

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[1] Between 50-80% of pregnant women self-report a "cognitive disturbance" during that period (Brett and Baxendale 2001).

[2] In fact, studies of rats show improved problem-solving, spatial memory and learning during pregnancy (eg: MacBeth and Luine 2010). Thus, "it seems that motherhood promotes increased cognitive abilities in women during pregnancy with potential carry-over into the post-partum period that may improve survival of young" (Logan et al 2014 p528) (appendix 1A).

[3] Also called "baby brain", or "maternal amnesia".

[4] One study suggested that mothers' brains lose 7% of volume during late pregnancy, but this is regained by six months post-natally as well as certain areas, involved in reasoning and judgment, and empathy, growing (Young 2016).

[5] Logan et al (2014) began: "The body of literature related to cognitive changes during pregnancy and early postpartum periods is mixed with multiple research designs showing varying levels of cognitive deficits, improvements, and no differences when compared to controls" (p528).

[6] Most studies are cross-sectional, and make a comparison between pregnant and non-pregnant women

There was no difference for cognitive abilities between the two groups of women at both testing points, and no difference between individuals at the two testing points. Thus, the findings were "evidence of not only a lack of deficits during pregnancy, but also a lack of significant cognitive improvements post-partum" (Logan et al 2014 p535).

A selection of seven standardised cognitive tests were used, including:

- Brief Visuo-spatial Memory Test-Revised (BVMT-R) (Benedict 1997) - Participants are shown a card with six geometric designs, which they must copy immediately and thirty minutes later.

- Paced Auditory Serial Addition Test (PASAT) (Strauss et al 2006) - Participants listen to a series of numbers being read out and then must add the number together.

Episodic memory	Implicit memory	Semantic memory	Working memory	Prospective memory
eg: recall events	eg: recall information not consciously learned	eg: recall facts	eg: store and manipulate information	eg: remember to do something in future
10/19	2/7	2/6	3/10	1/3

(Based on Cuttler et al 2011 table 1 p28)

Table 1.1 - Number of studies (out of total) reporting memory deficits in pregnancy compared to non-pregnant women.

Some suggest that such studies do not find support because the symptoms are too difficult to study in a laboratory [7]. For example, Cuttler et al (2011) did not find any differences between sixty-one pregnant and 24 non-pregnant women in laboratory-based cognitive tests, but the pregnant women forgot more often to call the researchers when asked or return questionnaires on time (ie: everyday memory tasks).

The researchers focused on prospective memory in developing naturalistic measures, including:

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at one point in time. Logan et al (2014) used a longitudinal design.

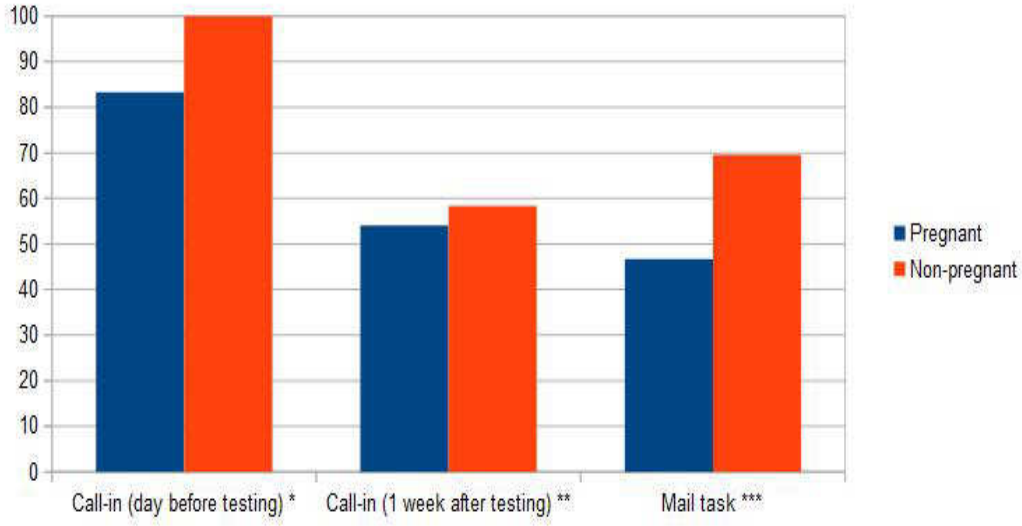
[7] Henry and Rendell (2007) concluded their meta-analysis that pregnant women are poorer on objective memory tests "that place relatively high demands on effortful processing" (quoted in Cuttler et al 2011). This meta-analysis has been criticised (appendix 1B).

- Phone Prospective Memory Task - Telling participants at the start to remind the experimenter about the phone at the end of testing.

- Call-In Prospective Memory Task - Asking participants to leave a phone message at two times (day before testing and one week after testing).

- Mail Prospective Memory Task - Complete questionnaire at home and return on certain date.

The pregnant women were significantly poorer on one of the Call-In tasks (day before testing), and on the Mail task only (figure 1.1).



(* p = 0.02; ** not significant; *** p = 0.03)

(Data from Cuttler et al 2011 table 2 p31)

Figure 1.1 - Percentage correct on selective naturalistic prospective memory tasks.

On the other hand, critics see "confirmation bias" at work - "pregnant women and new mums expect to experience brain fog and therefore believe they are actually affective" (Moyer 2015) [8].

[8] Logan et al (2014) noted that "a nocebo effect may occur where pregnant women misattribute negative, but common, symptoms of cognitive mistakes to their pregnancy" (p529). A nocebo is the opposite of placebo, and refers to the expectation of negative effects, whereas placebo is the expectation of positive consequences. Crawley et al (2008) referred to a negative stereotype of pregnant women as having cognitive decline.

1.2. HORMONAL CHANGES TO BRAIN

It is important, however, not to ignore the changes in the brains of mothers due to hormones related to pregnancy and birth.

Hormonal changes may lead to a vulnerability seen in post-natal or post-partum depression (eg: 10-15% of mothers of the USA; 3-63% worldwide; Hsleh 2015). But Leahy-Warren et al (2012) found that new mothers with social support and confidence in their ability as a parent (ie: high self-efficacy) were 75% less likely to be depressed than mothers with neither of these factors. The researchers distinguished four aspects to social support - hands-on, emotional, informational, and appraisal (eg: affirming that mother doing a good job) (Hsleh 2015).

Other factors, which vary between cultures, that can influence the risk of depression include pressure to return to pre-pregnancy weight (and appearance), interactions with mother-in-law, and perceptions around breast-feeding (Hsleh 2015).

Changes in the brain have also been reported in fathers of newborns. Kim et al (2014) performed brain scans on sixteen fathers just after birth and a few months later. The latter scan showed growth in the hypothalamus (linked to regulation of oxytocin, for example, involved in attachment), and the amygdala (linked to motivation), for instance (Landhuis 2015).

1.3. CRITICAL VOICES

Hurt (2011) argued that the "discursive construction of 'baby brain' functions to legitimise gender stereotypes and deflect attention from a host of material conditions that influence how women experience pregnancy and motherhood" (p376)... "This is not to say the material body plays no role in pregnancy or parenthood. Surely, the material body, with sperm, an egg, ovulation, fertilisation, foetal maturation, and then birth, affects how a woman will experience her pregnancy. However, as Susan Bordo [1993] contends, 'even in those areas where biology may play a more formidable role, its effect is never ''pure'', never untouched by history. We are creatures swaddled in culture from the moment we are designated one sex or the other, one race or the other'" (p378).

Individuals make sense of experiences through cultural discourses and expectations, which are the "interpretative toolboxes" (Kukla 2005). The "discourses produced by institutions or 'experts' communicate to the occupants of a space what should or should not be done

there, what practices are acceptable there, setting normative expectations for that historical moment" (Marcotta 2005 quoted in Hurt 2011).

A purely medical/biological explanation is an cultural discourse. Such emphasis is "a double-edged sword for women. On the one hand, women's experiences gain legitimacy when they are seen as worthy of inquiry; if science is willing to look into the causes of women's troubles, they must be real. On the other hand, these discourses turn women's bodies into objects of study for the medical and scientific institutions. In other words, women's bodies become medicalised, which encourages women to see their bodies as medical problems to be monitored" (Hurt 2011 p379).

This can also be used as a justification for discrimination by reinforcing negative gender stereotypes. For instance, an employer might argue that they cannot have pregnant workers because they are forgetful and thus do their jobs badly. Longhurst (2008) stated that "the discourse of women becoming overly emotional, irrational and/or forgetful during pregnancy can be particularly problematic for pregnant women engaged in (paid) work because workers are usually expected to function as fully individuated and rational subjects who have consummate control over their mental functions" (quoted in Hurt 2011 p380).

Furthermore: "Baby brain discourse is especially problematic for women because it creates a problem for which there is no solution. Since it traces women's intellectual capabilities to their sexed bodies, the discourse leaves women with no recourse other than to just 'deal with it'. Baby brain encourages pregnant and postpartum women to link any cognitive difficulty to their hormones and, therefore, to interpret memory lapses as individual, biological deficits. It is, the discourse suggests, nothing they can fix because it is literally 'all in their heads'. This individualising and personalising rhetoric diverts attention away from the host of obstacles that await pregnant women as mothers. For example, women may experience cognitive difficulty due to the changes in sleep, eating, and exercise, in addition to increased stress levels, that may accompany both pregnancy and infant care. Instead, the current baby brain myth individualises women's struggles and thereby, as Nancy Worthington [2005] argues, discourages women from analysing the structural gender inequalities that contribute to their dilemmas" (Hurt 2011 p380).

Fine (2008), talking generally, saw the claims of men and women having different brains as "old-fashioned sexism in the respectable and authoritative language of neuroscience" ("neurosexism"). For example, Brizendine

(2007) in "The Female Brain" presented working mothers as struggling against "the natural wiring of our female brains and biological reality" with a neurological "tug-of-war because of overloaded brain circuits" (quoted in Fine 2008). Mark Liberman (quoted in Fine 2008) observed in his blog that "misleading appeals to the authority of 'brain research' have become the modern equivalent of out-of-context scriptural fragments".

1.4. MUMMY BRAIN IS NOW GOOD

Thornton (2014) commented on a new trend: "over the past 10 years, neuroscientists have been proclaiming a new, hopeful message: Motherhood actually enhances women's brains by granting them a window of extraordinary neuroplasticity... In this new story of the enhanced 'mommy brain', mothers are cast as uniquely 'plastic' and agile creatures who enjoy a supercharged neural capacity activated by the biological and social processes of motherhood" (p271).

However, Thornton (2014) saw these ideas as "a new mutation of the socially prescribed 'good mother'", which she called "mommy economicus" (ME) [9].

ME is the combination of neo-liberalism and post-feminism in the form of "individualism, personal empowerment, and entrepreneurial approaches to self-conduct... She is a mother characterised by exceptional femininity, a construct culturally and historically circumscribed by themes of emotionality, care-taking and domesticity" (Thornton 2014 p272).

That is not to say that ME does not work outside the home. But she is a gendered member of the workforce in what McRobbie (2009) called a "new deal" - "she can work outside the home, but in return she must willingly embrace culturally prescribed gender norms and voluntarily refrain from criticising gender inequalities (as well as intersecting power dynamics)" (Thornton 2014 p273).

Vavrus (2007) talked of the "new traditional mother" - a reinvention of the traditional mother but with choice - "from the mundane (nursery colours) to the significant (delivery, feeding, and work), contemporary cultural discourses figure mothers above all as choosing agents" (Thornton 2014 p274) [10].

The possibility of choice is not quite what it

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[9] This term was in reference to "homo economicus" (Foucault 2010).

[10] Other terms used including "new capitalist mother" (Quiney 2007), "good working mother" (Buzzanell et al 2005), and "new mom" (Douglas and Michaels 2004). Rose (1999) described women as "obliged to be free" - "compelled to constantly work on their minds and bodies to transform themselves into good, healthy mothers and productive workers" (Thornton 2014 pp285-286).

seems. Thornton (2014) described it as part of "post-feminist sensibility", which is "not a direct repudiation of feminist ideals and discourses: rather, post-feminism presents an 'entanglement' of feminism and anti-feminism, an entanglement frequently described as a 'co-optation'" (p274). Cotter et al (2011) described the choice as fused with the traditional expectations of domesticity. In other words, you can do anything you choose as a woman, but you still have to look after the baby (and home) as well. There is not an either/or choice of career or motherhood, partly because the division between work and home is blurring, with the emphasis on the consequences of individual choices (rather than on structural limitations) - ie: the ideology of choice masks power differentials (Thornton 2014).

At the same time, the "mummy brain" is now a time of opportunity in terms of its neuroplasticity. "Women cannot simply give birth and then enjoy the benefits (and begrudge the disadvantages) that come along with motherhood – rather, they are obliged to work constantly to better themselves, to take advantage of their window of neuroplasticity, and to ensure that they achieve their highest potential. Thus, the mommy brain story assigns mothers a role that is actually quite precarious: They are obliged to vigilantly work on themselves, to build up and sustain their own capital. This responsibility intensifies rather than replaces the tremendous responsibilities already placed on the mother in existing constructions of ideal maternity, such as caring for home and family and nurturing life. If mothers take advantage of the extraordinary neuroplasticity afforded by motherhood, the rewards are enormous – personal success across multiple domains of life (public and private)" (Thornton 2014 p281) [11].

1.5. APPENDIX 1A - ANIMAL STUDIES

Cost et al (2012), for example, found the opposite to "baby brain" in rats, where the mothers were mentally

[11] "In the mommy brain story, the 'good news' of enhancement is to some extent moderated by the starkness of possibilities that neuroplasticity presents. During the hormone-induced 'critical window', the brain will change in response to stimuli, either for the better or for the worse. It will either grow into an enhanced mommy brain, with all the benefits such a neural structure entails, or it will fail to develop and will instead produce a 'vicious cycle' of mental and emotional problems. There is no middle ground, no opting out of creating anew one's identity — whatever mothers choose to do, feel, and think during early motherhood will wire their brains and determine their capacities, quite probably for the rest of their lives. Empowerment — the message that mothers' can control their destiny and achieve new levels of self-transformation through their own efforts—is not simply opportunity but obligation. A failure to act to transform oneself is to condemn oneself to future failure, struggle, and impairment" (Thornton 2014 p283).

improved after birth (ie: enhanced ancillary parental responses, like foraging efficiency and predator avoidance). The researchers used the object-in-place task (Dix and Appleton 1999), which tests rodent memory with four objects placed in an open area (90 x 90 x 45 cm) for the animals to learn for five minutes. Two objects are moved before the delayed interval recall test for three minutes (ie: object location and recognition tested). "Rodents prefer novelty, therefore memory for the original arrangement of the objects is indicated by increased time spent investigating the two objects that were relocated after the delay interval" (Cost et al 2012 p457).

A discrimination ratio is calculated - "the difference between the time spent with moved objects and the time spent with unmoved objects divided by the sum of the time spent with moved objects and the time spent with unmoved objects" (Cost et al 2012). A higher score suggests recall of objects.

Cost et al (2012) compared male and female rats with delayed intervals of 5, 30 and sixty minutes between learning and testing, and varied the level of hormones in the females. There was no difference between the sexes with a five-minute delay, but males performed better after a thirty-minute delay. Females with levels of hormones equivalent to pregnancy outperformed normal females and males after a sixty-minute delay.

Kinsley et al (1999) reported that rat mothers were superior at remembering the location of food in complex mazes, and faster at hunting prey than virgins (50 vs 270 seconds on average).

Kinsley and Lambert (2006) argued that hormones, like oestradiol and oxytocin, released in large amounts in pregnancy and afterwards produced more connections between neurons in the female rat brain.

Kinsley et al (2014) pointed out: "As pregnancy progresses, the female is literally transformed from an organism that actively avoided offspring-related signals, to one highly motivated by those same cues to build nests, retrieve, group, groom, crouch-over, and care for young" (p649). Pregnant females and mothers also undergo physical changes.

Kinsley et al (2014) compared unmated (nulliparous - NULL) female rats and post-partum lactating mothers on predation in seven experiments. The basic experimental design involved the speed of catching and consuming an adult cricket in an arena within a five-minute time limit.

Experiment 1 (basic design) - The mothers were significantly quicker than the non-mothers (mean 64 vs

263 seconds), and they improved over three trials. The animals had been food-deprived for ten hours before the experiment.

Experiment 2 (tested motivation of NULLs) - NULLs who had been food-deprived for twenty hours were no faster in catching the prey than NULLs in Experiment 1.

Experiment 3 (tested if olfaction important for mothers) - The experiment compared two groups of mothers, one who had their olfactory senses temporarily inhibited. This latter group were significantly slower in capturing the prey.

Experiment 4 (tested if hearing important) - There was no difference in speed between two groups of mothers, where one group had their hearing inhibited by loud white noise during hunting.

Experiment 5 (tested if touch important) - Mothers with whiskers trimmed were no faster or slower than ordinary mothers in capturing prey.

Experiment 6 (vision) - A group of mothers and a group of NULLs were habituated to the hunting area in bright light but tested in the dark. Relative to Experiment 1, the NULLs were faster and the mothers slower, which meant no difference between them in this experiment.

Experiment 7 (stage of pregnancy) - Three groups of mice at different stages of pregnancy were compared. "Paradoxically, as females become more cumbersome with advancing pregnancy (in the present females, we found upwards of a 35% body weight increase), they displayed a steady decrease in mean latencies to catch prey" (Kinsley et al 2014 p652) - eg: mean 124 seconds in late pregnancy vs 224 seconds in early pregnancy.

The final experiment showed that during pregnancy there is "a (likely) set of strong compensatory motor mechanisms that provide a significant boost to the female's behavioural repertoire. We have reported positive modifications to a constellation of strength and agility measures (Lambert and Kinsley 2009), which likely would contribute to the progressive improvement of predation with encroaching size and increases in weight; here the data show a translation of those motoric improvements into a practical benefit" (Kinsley et al 2014 p652).

As well as cognitive changes, the pregnant rat is physically enhanced compared to unmated females, and the mother maintains those advantages (results of Experiment 1). But there are not differences in senses that aid

predation (tested in Experiments 2-6).

The researchers noted: "Further, observations of the different predation strategies employed by the mothers and NULLs denote some interesting contributions to the variability in their ultimate success. A typical bout between NULL and cricket could be summed-up in a single word: inefficient. The animal would take an angle on the prey that was more catch-up than capture, resulting in attacks that missed their mark. The rat would chase the cricket hither-and-thither, a haphazard pattern which, if displayed outside the confines of a testing arena, would itself likely attract the attention of predators. In some cases, once the NULL rat caught the cricket, the cricket would slip the grasp and the chase would commence again. The mother rats' behaviour, however, was, in a word, economical. The capture trajectories appeared to be more direct and lethal" (Kinsley et al 2014 pp652-653).

Bardi et al (2014) found that captive owl monkey mothers were better at identifying large stores of food. Five females with reproductive experience (RE) and six with non-RE in captivity in Florida learned to retrieve marshmallow rewards from black rubber coin holders over ten days of training. The coin holders were marked with coloured tape to show three different levels of reward - no value (empty coin holder), low value (quarter piece of marshmallow), and high value (two pieces of marshmallow). During testing, nine coin holders were left out (three for each value), and the behaviour of the monkeys was observed (table 1.2). Note that because the animals are nocturnal, the testing (and training) was done in darkness and the observer wore night-vision goggles.

Category	Definition/Scoring
Frequency of approaching coin holders	Animal being within arm's reach but not in contact; tally
Frequency and duration of proximity to coin holders	Proximity = within arm's length; tally and time in seconds
Frequency and duration of contact with each coin holder	Tally and time in seconds
Number of pieces of marshmallow consumed	Tally

Table 1.2 - Behaviours scored by observers in Bardi et al (2014).

The RE animals spent about four times as long in contact with HIV coin holders than non-RE animals (mean 40 vs 11 seconds), and consequently consumed significantly more marshmallows (mean 2.6 vs 1.5 pieces) in the ten minutes of access. Spending more time in

contact with HV holders is a more effective foraging strategy.

This study also tested the males who were monogamously paired with the females, and they showed similar behaviours. Bardi et al (2014) summed up: "Corroborating previous research demonstrating adaptive modifications in foraging efficiency and emotional responses in reproductively experienced rodents, the current results extend these findings to a monogamous primate species" (p486).

1.6. APPENDIX 1B - CRITICISMS OF HENRY AND RENDELL (2007)

Hurt (2011) noted that pregnant women (irrelevant of the point in pregnancy) and new mothers (however many months after birth) were grouped as one for analysis purposes, as well as ignoring individual women's experiences (eg: education, location, and time period). Hurt (2011) was also critical of the statistical techniques of the meta-analysis.

More generally, the use of statistics and a concept like "significance", which to academics usually means "statistically significant", but to the wider audience is taken as "a noticeably or measurably large amount" (when the statistical effect was small). The mass media went with this latter interpretation (appendix 1C) - eg: "considerable memory loss"; "baby brain myth becomes a reality"; "pregnancy does make women more forgetful". The media also reported statistics to support this idea - eg: quoting the upper number in a range of estimates: 50-80% is quoted as "80% of all pregnant women" (Hurt 2011).

Hurt (2011) argued that "Henry and Rendell's study is weak - due both to its assumptions that undercut the roles culture and discourse play in the pregnant experience and to its statistically small findings - [but] their research was interpreted as having provided solid evidence for baby brain's existence" (p391).

McGee (1998) stated that "with regard to the way people actually interact rhetorically, what they remember is not facts, but what the facts mean - what they interpreted the facts to mean; how important they were; what they did with them; how they related the facts in some way to action or belief. And that they remember correctly" (quoted in Hurt 2011).

1.7. APPENDIX 1C - MISCOMMUNICATION OF SCIENTIFIC FINDINGS

The "Mozart effect" is the general popular idea that "music makes you smart", or more specifically that spatial task performance is improved after listening to a Mozart sonata (Rauscher et al 1993). The general idea has

become a "scientific legend" (Bangerter and Heath 2004), and part of everyday common sense. Yet studies have "conclusively debunked" the idea (Mehr 2015).

For example, Mehr et al (2013) found no support for non-musical cognitive benefits of brief pre-school music enrichment in two randomised trials. This study led to a "media firestorm" with over one hundred reports around the world, including the suggestion that "music lessons confer no cognitive benefits whatsoever (eg: regardless of child age or training content, duration or intensity)" (Mehr 2015).

Mehr (2015) noted the reaction as part of the sensationalist coverage of aspects of science. He reviewed fifteen years of media coverage of scientific work on music cognition and found two categories of reporting errors:

i) Misinterpreting correlations as causation - eg: the finding that elderly musicians had better cognitive skills than elderly non-musicians was reported as music caused the better skills.

ii) Errors in interpreting psychometric outcomes - eg: an improvement in word recall after music lessons was reported as improved vocabulary [12].

"That dry scientific titles are translated into catchy headlines is not necessarily worrisome; after all, science journalism can only thrive if the general public actually reads its journalistic product. However, these catchy headlines often include both error types..." (Mehr 2015 p2). Mehr et al's (2013) title, "two randomised trials reveal no consistent evidence for non-musical cognitive benefits of brief pre-school music enrichment" became "Do, Re, Mi, Fa-get the piano lessons: music may not make you smarter" in one magazine (Mehr 2015). As Mehr (2015) pointed out: "We studied neither piano lessons nor general intelligence".

So what is the reason for the errors: "Are journalists sensationalising research findings to garner page-views and sell papers, or are scientists exaggerating the importance of their own work"? Mehr (2015) answered his question, "both".

[12] Barron and Brown (2012) reported similar examples with studies of animal sexual behaviour. For example, a study of the evolution of co-operative breeding in the Laysan albatross was reported as "the love that daren't squeak its name: when animals come out of the closet" (Mehr 2015).

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2. DISRUPTIVE PATIENTS: TWO STUDIES

2.1. QUESTIONNAIRE STUDY

Doctors may find their interactions with patients stressful when faced with individuals diversely called "difficult", "heartsink", "frustrating" [13], or "hateful" patients (Schmidt et al 2016) [14]. Such patients receive these sorts of labels because they are demanding, argumentative/aggressive, or ignore the advice of the doctor, for example. About one in six interactions with outpatients were reported to be with hard-to-deal-with individuals (Schmidt et al 2016).

Doctors respond most negatively to threats to their integrity or self-esteem, and to demanding or upsetting patients, but does this "influence their diagnostic decisions adversely" (Schmidt et al 2016)? Traditionally, doctors deny that their negative feelings influence their judgments (Croskerry et al 2010).

Jackson and Kroenke (1999) investigated the characteristics of patients and doctors that lead to difficult doctor-patient interactions/encounters. The researchers recruited five hundred adults at a walk-in clinic in Washington DC, and thirty-eight clinicians working there. Both groups completed different questionnaires.

1. Patients - A brief survey on the severity of their symptoms was completed before seeing the doctor, immediately afterwards, and two weeks, and three months later. They also completed the Medical Outcomes Study Short-Form Health Survey (SF-6) (Ware et al 1992) [15], and the Primary Care Evaluation of Mental Disorders (PRIME-MD) (Spitzer et al 1994) before meeting the doctor, and the RAND nine-item satisfaction survey after the visit.

2. Doctors - Physician's Belief Scale (Ashworth et al 1984) (which measures attitudes towards psychosocial aspects of care [16]) completed before the study began, and the Difficult Doctor-Patient Relationship Questionnaire

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[13] Lin et al (1991), for example, found that over one-third of outpatient interactions were rated as "frustrating" by doctors when given the choice of "satisfying", "average" or "frustrating".
[14] Also "black holes" and "troublesome" (Jackson and Kroenke 1999).
[15] Eg: "In general, would you say your health is": excellent/very good/good/fair/poor.
[16] For example, how important non-medical factors are compared to medical factors in an illness.

(DDPRQ) (Hahn et al 1994) [17] after seeing each patient.

In terms of the patients, those in difficult doctor-patient interactions were more likely to have a mood or anxiety disorder [18], be worried that their symptoms were a serious illness, had greater reported symptom severity [19], and more symptoms reported (somatisation) [20]. The following patient factors were not related to a difficult encounter - gender, age, ethnicity, education level, marital status, pre-visit expectations, duration of symptoms, or type of physical symptoms.

Doctors with higher Physician's Belief Scale scores (ie: poorer psychosocial attitudes [21]) reported significantly more difficult patient encounters than lower scorers [22] [23]. Age, gender, ethnicity or experience of the doctors were not significant factors.

After the interactions, there were significant differences on the DDPRQ for self-reported difficult than non-difficult patients, including less eager to see patient again, and felt frustrated and uneasy about them (figure 2.1).

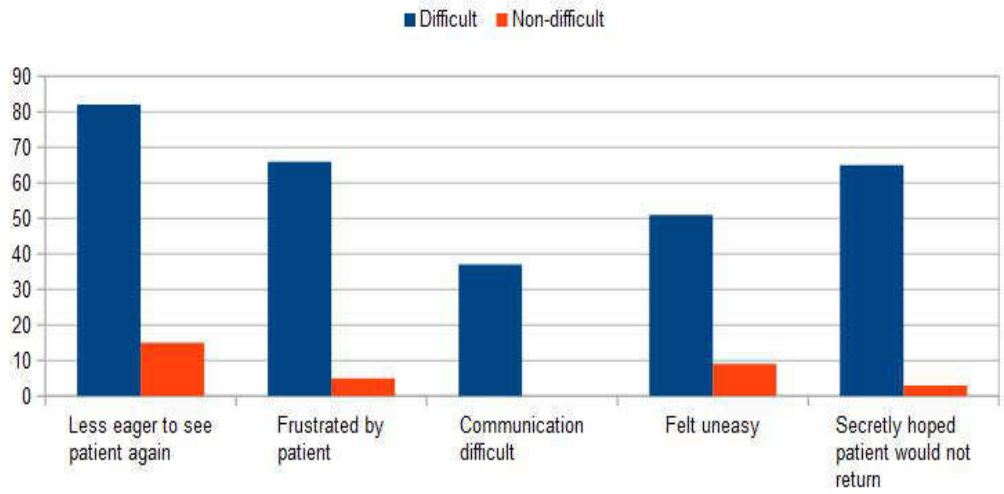

Figure 2.1 - Percentage of doctors responding to items based on encounter rated as difficult or not.

[17] Items include: "How demanding was this patient today?"; "How tense did you feel when you were with this patient today?"; "Overall, how enjoyable is caring for this patient?".
[18] Odds ratio of 2.4 compared to no disorder.
[19] Odds ratio of 1.6 compared to less severe symptoms.
[20] Odds ratio of 1.9 for more than five vs less than five symptoms.
[21] Such doctors focused on the medical only.
[22] Odds ratio of 3.9.
[23] Hahn et al (1996) found the opposite. Jones and Kroenke (1999) explained the difference thus: "Their finding was limited by clinician interest measurement based on responses to a single, non-validated questionnaire. Additionally, their physicians were a select group, volunteering to participate in the PRIME-MD Study and seeing their own clinic patients" (p1073).

Patients with difficult encounters were less satisfied with their care at all three points after the visit, and they had a higher number of subsequent visits in the following three months.

Jones and Kroenke (1999) summarised the findings thus: "Difficult patients are more likely to have multiple somatic complaints, to be seriously worried about their symptom, to report greater symptom severity, have underlying mental disorders, and to report poorer self-reported functional status. Adverse patient outcomes of difficult encounters can include more unmet expectations, less satisfaction with care, and higher utilisation rates" (p1074).

Table 2.1 summarises some key strengths and weaknesses of the study.

STRENGTHS	WEAKNESSES
1. Prospective design. 2. Large sample of patients. 3. Measured responses of both patients and doctors, and with validated questionnaires.	1. Walk-in patients seeing any doctor rather than those with an ongoing relationship. Hahn et al (1996) reported that new patients were less likely to be rated difficult by doctors than "somewhat known" or "well known" ones. 2. Patients had varied physical symptoms. 3. Short measure of expectations used.

Table 2.1 - Key strengths and weaknesses of Jones and Kroenke (1999) study.

2.2. EXPERIMENT

Schmidt et al (2016) hypothesised that doctors' judgment would be influenced in their study in Holland using patient vignettes. Sixty-three trainee general practitioners (GPs) in Rotterdam were the participants. Vignettes for six conditions were created from real cases to cover three straightforward diagnoses and three more complex ones. Each vignette had two versions - a neutral patient and a difficult patient. The latter versions had phrases like a "frequent demander" included in the case details.

Participants saw neutral-patient versions of three cases and difficult-patient versions of the other three. The researchers called this a "balanced within-subjects incomplete block design".

Participants were asked to provide a diagnosis in

each case, while the time taken was noted, and to rate the likeability of the patient on a five-point scale.

Not surprisingly, the difficult patients were rated as significantly less likeable. The participants made significantly more errors in diagnosis accuracy for the difficult patients, irrelevant of case complexity, but there was no difference in time spent on the case based on patient version. About 40% more mistakes in diagnosis were made for the difficult-patient version of the complex cases, but only 6% more mistakes for the simple cases.

Schmidt et al (2016) were not sure how to explain the difference in diagnosis: "One possibility... was that doctors avoid extensive processing of the information provided by difficult patients. Such tendency to avoid difficult-to-handle patients might lead to ignoring particular signs or symptoms. If this idea were to have any merit, we expected our participants to spend less time on a difficult patient than on his or her neutral counterpart. However, our results did not support this hypothesis" (p4).

There are three main limitations to this study:

i) The use of written vignettes, which is not the same as face-to-face interactions in real-life. So, how generalisable are the findings?

The researchers countered that other studies have found case vignettes to be "a good proxy for the study of doctors' behaviour in real-world settings" (Schmidt et al 2016).

ii) The deliberately placed information about difficult behaviour may have been interpreted as a symptom of the case.

Schmidt et al (2016) countered that similar diagnoses would be expected if this was the case, and it was not so. However, only full within-subjects (or repeated) design would reduce this concern. But this type of design introduces the risk of order effects - namely, the second version of the case could be easier to diagnose. Let alone giving clues to the participants about the independent variable (ie: the patient version).

iii) The participants were trainees, and so how applicable are the findings to experienced GPs/doctors?

Schmidt et al (2016) noted that "as physicians gain experience, they will encounter difficult patients more frequently, which might make emotional reactions more likely to occur. Whether more experienced physicians are better able to counteract their effect (as they would tend to learn how to deal with them) or whether they would be even more harmed by them is still to be studied" (p4).

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