

Research Funding Levels: A Fundamental Ethics in Mental Health Issue

Part I – Analysis, Results and Conclusions

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ABSTRACT

Research funding sufficiency is a core ethical issue in mental health, and the focus of a quantitative study of mental health and illness research (MHIR) funding at the Canadian Institutes of Health Research (CIHR). Over 5000 abstracts from CIHR's first 10 years (1999-2009), extracted from its funded research database by CIHR personnel, were examined to determine what proportion of health research funded by CIHR was for MHIR, how much was mental health research versus mental illness research, and how much was neuroscientific versus non-neuroscientific. Findings: Ostensibly, MHIR at CIHR is adequately funded on the macro level, but allocations within MHIR may not satisfactorily address its extensive mandate – mental illnesses may well be under-funded and under-researched. The necessarily unique analysis of the data, methodological challenges encountered along the way, research questions generated by the study and implications for future research of research, are explored in *Part II* in the next edition.

Key Words: funding; research; health; mental

Introduction

Given the suffering of hundreds of thousands of mentally ill Canadians, past, present and future (Government of Canada, 2006b; Health Canada, 2002), the onerous burden of mental diseases (Statistics Canada, 2010), and the essential value of mental health, neglect of mental health and illness issues in this country has been, and may still be, unethical (Canadian Alliance on Mental Illness and Mental Health, 2000; Cote, 2008; Kirby, 2008). In particular, the funding of mental health and illness research (MHIR) is essential. In Kantian terms, funding is a necessary condition for the possibility of research, MHIR or otherwise; so the adequacy of MHIR funding is an ethics issue logically prior to all other matters of ethics in MHIR (e.g. human subjects, stem cell research, etc.).

Historically and globally, mental health and illness issues have been routinely neglected (Marchildon, 2005; Miller, 2006; World Health Organization, 2001; World Health Organization, 2005; World Health Organization, 2006); and the sufficiency of MHIR funding received little or no attention until recently (Goldner, 2005; Saxena, Paraje, Sharan, Karam, & Sadana, 2006). This is not hyperbole – the literature contains little or no research in this area up to the turn of the 21st century, and it is replete with researchers bemoaning the paucity of MHIR in Canada and around the world (Lam & el-Guebaly, 1994; Lancet Global Mental Health Group et al., 2007; Pincus & Fine, 1992; Pincus, Henderson, Blackwood, & Dial, 1993; Saraceno & Saxena, 2004), calling for a greater range of MHIR objectives (Gnam, 2004; Saxena, Sharan, & Saraceno, 2004), and an urgent need for substantial increases in MHIR funding across the board (Hampton, 2006; Kingdon, 2006).

Research Objective

How much MHIR are we funding? Among all the concerns of MHIR, how many get the funding they need? Moreover, how do we determine need for research funding to pursue specific research objectives; and how do we evaluate results of funding in terms of achieving intended research objective(s)? These question became the impetus for a Master's of Science research project completed early in 2010: *Mental Health and Illness Research Funding in the Canadian Institutes of Health Research – The First 10 Years (1999-2009): A Quantitative Analysis*; a study conducted to gauge our federal health research priorities with respect to MHIR.

The main objective of the present study was to find a way to measure federal dedication to MHIR funding. CIHR was selected as the site for this research, as it has consistently received 55-60% of Canada's federal health research budget each year since its first year of operation in 1999 (Government of Canada, 2006a), so its funding allocations over the first 10 years (1999-2009) can be used as an indicator of our health research priorities.

This research objective required an in-depth examination of CIHR's funded research database to determine, and graphically illustrate, funding levels of MHIR compared to all other health

research, as well as relative funding allocations within MHIR. This objective, and other preliminary considerations justified below, led to a three-part research question: (i) what proportion of research funded by CIHR from 1999 to 2009 went to MHIR; (ii) how much of this can be considered mental health versus mental illness research; and (iii) how much is neuroscientific versus non-neuroscientific research?

Method

Data Collection and ‘Cleansing’

CIHR consists of 13 virtual institutes, each having a theme with a set of related research areas (Canadian Institutes of Health Research, 2009a; Canadian Institutes of Health Research, 2009d), and the Institute of Neuroscience, Mental Health and Addictions (INMHA) is charged with focusing on MHIR (Canadian Institutes of Health Research, 2009c). The ubiquitous nature of mental health and illness concerns in the context of human health, however, means that more than half of MHIR at CIHR takes place outside INMHA, in the other twelve virtual institutes (e.g. studying depression in cancer patients in the Institute of Cancer Research) and special programs. Therefore, data on all MHIR related projects from 1999 to 2009 throughout CIHR needed to be captured; and it would have to be detailed enough to permit categorization of each according to the research objective(s).

To ascertain if CIHR’s online funded research database was the best way to collect the required data, the researcher contacted CIHR (Canadian Institutes of Health Research, 2009b). An invitation to submit a request for a comprehensive internal search by CIHR’s data specialists was extended, and the researcher supplied the search criteria. This search produced detailed datasets containing information on all MHIR projects funded over the ten-year period in Microsoft Excel spreadsheets form, completely satisfying the study’s data collection requirements.

Careful reading of titles, keywords and abstracts for all MHIR projects at CIHR from 1999 to 2009 took several months, including two false starts before the analysis could proceed in earnest; it became clear that the datasets needed to be ‘cleaned’ to some extent (i.e. duplicates, funding beyond 2009, and one project unrelated to MHIR), and these procedures eliminated 229 records, leaving a total of 4975 projects out of 5204 for analysis.

Two Distinctions: Expanding the Research Question

The preliminary work also gave pause for theoretical considerations and methodological adjustments. First, the study could contribute valuable quantitative data to a current debate in the literature regarding the reduction of psychiatric research to neuroscience. A second, more crucial distinction, proved much more difficult to make. With MHIR, we have two main spheres of interest: mentally illness research, and mental health research. For the former, we seek to identify causes of disease and develop treatments to alleviate suffering. For the latter, we want to prevent mental illness while maintaining and enhancing mental health. Discerning between the two, in terms of research, raises an important question: Is it possible we are funding more mental health research than mental illness research, to the detriment of our mentally ill citizens? Are

we robbing Peter (research into the mental illnesses of Canadians) to pay Paul (research into the mental health of Canadians)?

Mental Health versus Mental Illness. In everyday discussion, ‘mental health issues’ are about challenges to an otherwise healthy brain/mind which could lead to a need for medical attention; ‘mental illness issues’ are about diseases/disorders afflicting the brain/mind severe enough to be considered matters of illness, requiring considered medical attention. However, when studying health research and the adequacy and/or effectiveness of health research funding, the merits of maintaining a sharper distinction between health research and illness research emerge, and this is no less true for the specific area of MHIR.

From the perspective of population health, we wish to help alleviate the suffering of Canadians with mental illnesses, and to maintain and enhance the mental health of all. But given the extensive mandate of CIHR’s Institute of Neurosciences, Mental Health and Addiction, how dedicated and effective are we in addressing this or that mental illness? To account for this, and provide the multiple levels of data analysis it permits, this research makes a clear distinction between mental health research and mental illness research in the analysis, and categorizes all projects accordingly.

For the present study, research seeking to better understand how a healthy brain works, and what will keep it healthy, is considered mental health research; research seeking a better understanding of how the brain of a person with a specific mental illness works, or to design treatments for specific mental illnesses or classes of mental illness, is mental illness research. To use an analogy, poor nutrition can result in an illness like scurvy, but nutrition research is not scurvy research, and can only be considered such indirectly. Similarly, the successful achievement of the present study’s research objective may make studies on health funding allocation policies more possible, but it could only be considered health funding allocation policy research indirectly.

Valuing Mental Health (2001), an excellent document put forth by the Government of Newfoundland and Labrador, defines mental health as the everyday efforts of an individual to cope with the challenges of life, with or without abuse, support networks, financial security, adequate housing, education and/or employment. It defines mental illness as a medically diagnosable disorder that impairs thought, mood and behaviour; essentially, the presence or absence of symptoms of disorder. However, the paper also argues that the phenomena of mental health and mental illness are two interrelated continuums, whereby a person whose everyday circumstances are good (mentally healthy) may nevertheless be suffering from a mental illness, and the everyday circumstances of a person free of mental illness may be unfortunate enough as to make the person mentally unhealthy (Newfoundland. Dept. of Health and Community Services, 2001).

If mental health and mental illness are indeed two continuums with a complex, mutually definitive relationship, it may be argued that the present study’s distinction bifurcates what should be left whole – that we cannot have one without the other. While this is true with respect to the concepts of mental health and mental illness, in the realm of research this is a crucially important distinction to make. Scientific research as *analysis* is a breakdown of a whole into its constitutive parts, that we may begin to study the interplay

among those parts, giving dimension to our understanding of the phenomenon as a whole. To be sure, mental illness research strongly depends on what is learned from mental health research, and (to a lesser extent) vice versa; but we need to ask what relative proportion of the two best serves us, and the answer should figure prominently in MHIR funding allocation decisions on the macro level. We cannot have one without the other, but it is important to know how much of each achieves the most desirable results for both, and for efforts to adequately address mental health and illness in Canada. The present study highlights this as yet underappreciated health research objective, and the data it has generated provides a starting point for its achievement.

Illness research, as opposed to health research, must have a specific focus on one or more illnesses; studies of healthy brains and nervous systems can only indirectly contribute to our scientific understanding of and triumph over any given mental illness. The two do often overlap and support each other, and success in either sphere does mean indirect benefit to the other; but their difference is an important point when determining how balanced and effective our health research agenda is in terms of addressing mentally illnesses versus fostering mental health.

Therefore, for the present study, if the abstract contains a clearly stated, direct intention to target one or more mental illnesses, conceivably directly improving the lives of those suffering from the illness(s), it is deemed mental illness research; if the research objective(s) does not target one or more specific illnesses, and the research only benefits the mentally ill indirectly, it is deemed mental health research; and if a study involves a mental health research objective and mental illness research objective (e.g. stress in diabetes patients), it is categorized as a mental illness study. Almost all abstracts were accommodating in terms of making the distinction, as a clear statement of research objectives in the abstract is always a prerequisite for achieving research funding.

The Dominance of Neuroscience: A Related Issue. Over-emphasis on one or more research areas within MHIR would make it more possible for certain areas to be under-researched or neglected; the same is true if one scientific approach is stressed more than any other – such as neuroscience. The titular primacy of ‘neuroscience’ in the name of the institute charged with guiding mental health and illness research at CIHR (INMHA) reflects its predominance in psychiatric research in recent years. This issue has become contentious in Canadian psychiatric circles, giving rise to a heated debate in the literature, and this is addressed with the third part of the present study’s research question. In a recent edition of the *Canadian Journal of Psychiatry*, Dr. Joel Paris (2009) expresses well the fear that this phenomenon threatens to ‘reduce’ the field of psychiatric research to neuroscience:

A reductionistic approach cannot account for emergent phenomena occurring at the level of mind...Mental disorders cannot be reduced to abnormalities in neuronal activity; psychiatric symptoms need to be understood at multiple levels (p.513).(Paris, 2009)

Paris is concerned about a narrowing of the scope and effectiveness of psychiatric research, and his concerns appear to be valid. Narrowing the scope of this field at a time when we are coming to understand the multiple levels of attention mental illness and MHIR requires is, at best, counterintuitive; neuroscientific

dominance will deemphasize qualitative research and mixed methods, just as the value and utility of these research methods are being realized.

Even though the distinction between neuroscientific research and non-neuroscientific research does not parallel the distinction between health research and illness research, we may see that neuroscientific domination in the field of MHIR can have a detrimental effect not unlike that of an overemphasis on mental health research – under-researching specific mental illnesses. Therefore, the third part of the present study’s research objective provides a quantitative evaluation of neuroscientific versus non-neuroscientific research in the MHIR funded and performed at CIHR. Conveniently, the Excel spreadsheets provided had each project labeled as either neuroscientific or non-neuroscientific.

With these two distinctions, the study’s three-part research question took shape, and a general categorization scheme was conceived whereby each project was designated as either mental health research (MH), mental illness research (MI), neuroscientific mental health research (NMH), or neuroscientific mental illness research (NMI).

Analysis and Data Generation

The datasets provided by CIHR included the titles, keywords and abstracts for all MHIR projects funded by CIHR from 1999 to 2009. To capture all information necessary to fulfill this study’s research objective each project record was scrutinized, and the systematic recording of all relevant information generated primary data from secondary data. Pursuit of the research objective demanded a methodological design driven by analysis of the data itself. An heuristic process method unfolded with the analysis of each project record, generating data on multiple levels, and permitting tabular and graphic illustrations of the results. A scheme for general categorization in terms of neuroscience, mental health, and mental illness had been devised (see above), and a column created in the spreadsheets to register these designations. Totaling and recording dollar values and program types was a simple matter of using Excel’s sum function.

Sub-categorically recording projects according to research objective, however, was another matter entirely. Unlike the general categorization scheme, a sub-categorical scheme for research objectives could not be conceived prior to analysis, so in preparation a column was created in the spreadsheets. Each abstract clearly stated its research objective(s), which was instrumental in determining whether the project was mental health research or mental illness research, and the project was categorized accordingly; but the research objective itself had to be recorded in some way.

The first project record examined indicated that the study’s research objective was schizophrenia, and so was sub-categorized with the designation ‘SCH’. The next project targeted depression, and was sub-categorized with the designation ‘D’. Some studies dealt with more than one research objective (e.g. depression and suicide), in which case both were sub-categorically recorded. As the research moved through the project records, sub-categorical designations were generated in this way, ultimately creating a typology based on what was found.

Addressing Limitations

A study based on single person data coding must account for the researcher’s role in the process (i.e. reflexivity) and a certain margin of error. With the first few hundred abstracts, a small lexicon of terminology was built in preparation for the thousands yet to be analyzed. But near the 500 mark, the researcher became more and more aware that hundreds of abstracts had been analyzed without full knowledge of the import of its terms, giving rise to a set of ‘method corrections.’ From this point on, terms and concepts that could not be understood completely were noted, generating a list of 22 concerns. Upon completion of the analysis, Excel’s search engine was used to track down all abstracts containing one or more of these 22 terms and concepts; one by one these abstracts were re-analyzed from a more experienced perspective, and inaccuracies or mistakes of any kind were found and corrected.

Categorization and sub-categorization was periodically checked with ten randomly chosen projects, reading titles, abstracts and keywords of projects afresh to identify any other methodological mistakes. Almost 30 more random checks were conducted, mostly on projects categorized and sub-categorized in the early stages of the analysis when the researcher was less comfortable with the process. These checks were discontinued after finding ten projects in a row that did not need to be corrected in any way. Method correction arose directly from the process method of analysis. The method had generated its own corrections by turning the researcher’s experience of performing the complete analysis back on itself, fixing errors made earlier. The systematic edification of the researcher was a product of the self-unfolding nature of the method, as it used the researcher’s progressive experience with the data to correct itself.

Results and Conclusions

In terms of the three-part research question, the study produced the following results and conclusions:

(1) Proportion of CIHR’s Global Budget Going to MHIR.

Results:

The yearly totals from CIHR’s global health research budget were divided into the yearly MHIR totals from the data sets. The results are shown in the following table and graphic:

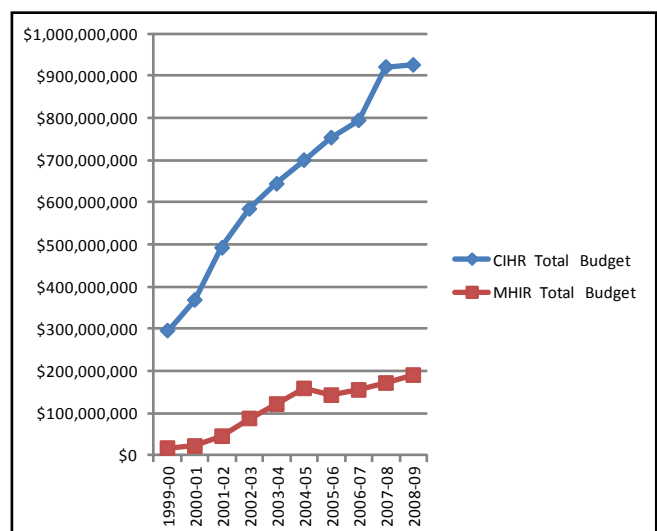
Conclusion:

On the macro-level there has clearly been a concerted effort to elevate MHIR funding. This gives us the ‘big picture’ – a picture we must now analyze in two ways, corresponding to the two remaining parts of the question. Assuming MHIR is sufficiently funded as a whole, we now ask: How is MHIR funding allocated, considering the extensive set of demands in its mandate?

Table 1: CIHR vs. MHIR – Total Budget w/ Proportional Percentages (1999-2009)

Funding Year	CIHR Total Budget	MHIR Total Budget	MHIR: % of CIHR Total Budget
1999-00	\$296,051,529	\$17,390,350	5.00%
2000-01	\$368,716,716	\$22,287,066	6.00%
2001-02	\$492,324,742	\$45,560,390	9.00%
2002-03	\$584,645,241	\$87,581,198	14.00%
2003-04	\$644,095,532	\$121,717,132	18.00%
2004-05	\$700,337,606	\$158,949,182	22.00%
2005-06	\$753,721,039	\$142,962,870	18.00%
2006-07	\$794,506,084	\$155,408,494	19.00%
2007-08	\$921,135,199	\$171,806,194	18.00%
2008-09	\$926,081,078	\$190,527,576	20.00%
Totals	\$6,481,614,766	\$1,114,190,452	17.00% (average)

Figure 1: CIHR’s Total Budget vs. MHIR Total Budget (1999-2009)



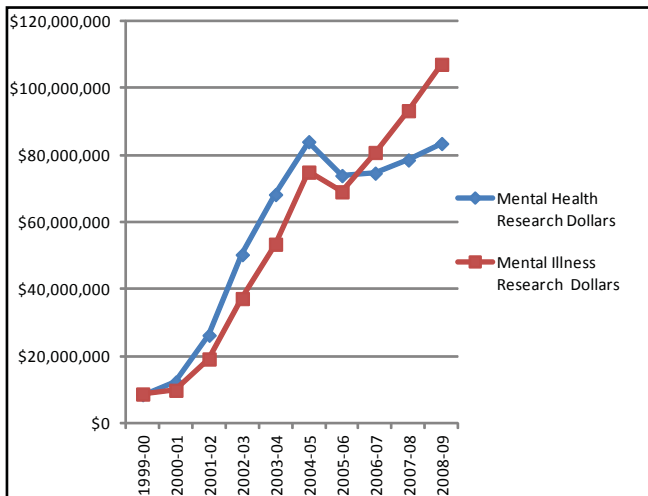
(2) Mental Health Research vs. Mental Illness Research.

Results: Each project was categorized as one of four general study types. So the total NMH and MH projects constitute all mental health research, and the total NMI and MI studies make up all mental illness research. Results are given in the following table and graphics:

Table 2: Mental Health Research vs. Mental Illness Research: Funding Dollars with Proportional Percentage of Total MHIR (1999-2009)

Funding Year	Mental Health Research Dollars (% of total MHIR)	Mental Illness Research Dollars (% of total MHIR)
1999-00	\$8,598,787 (49.0%)	\$8,791,563 (51.0%)
2000-01	\$12,369,478 (55.0%)	\$9,917,588 (45.0%)
2001-02	\$26,312,393 (57.0%)	\$19,247,997 (43.0%)
2002-03	\$50,344,432 (57.0%)	\$37,236,766 (43.0%)
2003-04	\$68,262,065 (56.0%)	\$53,455,067 (44.0%)
2004-05	\$84,007,073 (52.0%)	\$74,942,109 (48.0%)
2005-06	\$73,898,105 (51.0%)	\$69,064,765 (49.0%)
2006-07	\$74,623,069 (48.0%)	\$80,785,425 (52.0%)
2007-08	\$78,551,255 (45.0%)	\$93,254,939 (55.0%)
2008-09	\$83,457,866 (43.0%)	\$107,069,710 (57.0%)
Totals (Averages)	\$560,424,523 (51.3%)	\$553,765,929 (48.7%)

Figure 2: Mental Health Research vs. Mental Illness Research: Funding Dollars (1999-2009)



Conclusion: The study's distinction between mental health research and mental illness research is an effort to ascertain how MHIR funding is being distributed, determining to some extent whether CIHR's funding allocations to MHIR adequately provide for all that MHIR must address. Table 2 indicates that allotments for mental health research versus mental illness research have been almost two halves of a whole. Though mental health research had the upper hand up to the end of 2005-06 (over 50%), the trend in the later years is reversing this, turning relative proportions around in favour of mental illness research. This is illustrated in Figure 2, with a clear increase for mental illness research in the last couple of years diverging from that of mental health research.

We conclude there has been a fairly equal allocation of funding for mental health research versus mental illness research over the last ten years at CIHR.

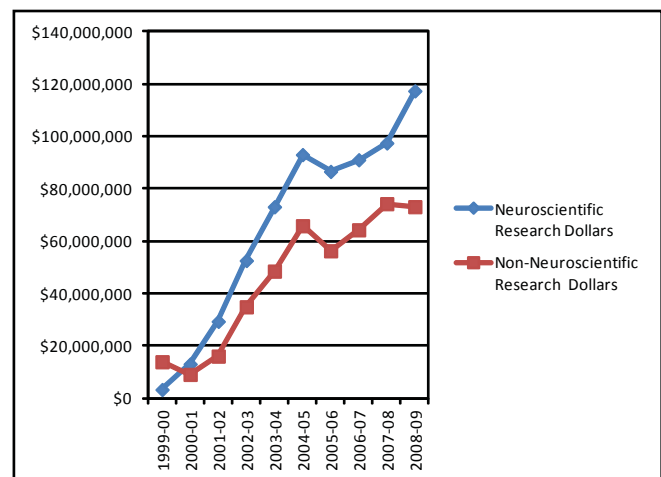
(3) Neuroscientific Research vs. Non-Neuroscientific Research.

Results: We turn now to the findings for the answer to the third part of the research objective. CIHR's data sets came with a column to indicate a study was either neuroscientific (1) or otherwise (2), and the results are given in the following table and graphics:

Table 3: Neuroscientific vs. Non-Neuroscientific MHIR: Funding Dollars with Proportional Percentage of Total MHIR (1999-2009)

Funding Year	Neuroscientific Research Dollars (% of total MHIR)	Non-Neuroscientific Research Dollars (% of total MHIR)
1999-00	\$3,393,675 (19.0%)	\$13,996,675 (81.0%)
2000-01	\$13,138,479 (58.0%)	\$9,148,587 (42.0%)
2001-02	\$29,401,003 (64.0%)	\$16,159,387 (36.0%)
2002-03	\$52,631,740 (60.0%)	\$34,949,458 (40.0%)
2003-04	\$73,136,467 (60.0%)	\$48,580,665 (40.0%)
2004-05	\$93,048,462 (58.0%)	\$65,900,720 (42.0%)
2005-06	\$86,633,468 (60.0%)	\$56,329,402 (40.0%)
2006-07	\$91,077,850 (58.0%)	\$64,330,644 (42.0%)
2007-08	\$97,494,585 (56.0%)	\$74,311,609 (44.0%)
2008-09	\$117,368,388 (61.0%)	\$73,159,188 (39.0%)
Totals	\$657,324,117 (58.0%)	\$456,866,335 (42.0%)

Figure 3: Neuroscientific vs. Non-Neuroscientific MHIR: Funding Dollars (1999-2009)



Conclusions:

The study contributes to the 'reductionism' debate by summing and comparing the funding of neuroscientific and non-neuroscientific MHIR over the first ten years of CIHR's operation, providing hard, quantitative evidence for both sides to consider. Table 3 shows that, when we average the 10 years, well over half of all MHIR at CIHR has been neuroscientific research (58%). Furthermore, a troubling trend for the anti-reductionist camp has been developing – except for the first year, neuroscientific research dominated with an average of 59.44% of all MHIR funding, leaving all other research to share little more than 40%. Figure 4 indicates this will continue, as in the last two years the lines in the graph for each flare in different directions; neuroscientific research funding is continuing to go up, while all other types of MHIR funding are going down.

We can conclude that neuroscientific research does indeed dominate all other study types in the field of MHIR at CIHR, whatever the consequences may be for the future of psychiatric research. This further justifies this study's efforts to determine, to some extent, whether the funding needs of certain mental illness research areas are adequately addressed, as it pursues a host of mental health research objectives amid its mental illness research agenda. In fact, 61% of neuroscientific MHIR analyzed in this project was categorized as mental health research. Paris (2009) shares this concern: "Thus far, neuroscience research has contributed more to the understanding of the brain than to determining the causes of mental disorder." (p. 513)

Further Discussion

There are many conceivable conclusions that can be drawn from the findings of this study, as many important questions have been raised, and more research is required on a number of fronts.

However, we may say there is one overarching conclusion: MHIR as a whole seems to be adequately funded at CIHR, but funding allocations within MHIR may not be meeting all the research objectives it is charged with pursuing. In particular, specific mental illnesses may well be under-researched.

As important as it is to know what the present study has uncovered, it has only scratched the surface. The researcher believes the most valuable contributions the study makes lie in the questions, implications and recommendations arising from the methodological challenges faced during analysis and in the generation of results, and from what the analysis and findings say about the unique challenges associated with researching research, MHIR or otherwise. These issues are addressed in depth in Part II of this article.

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