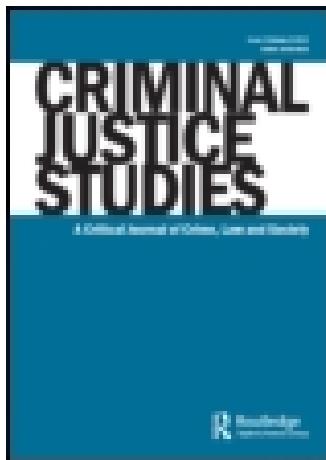


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The future of biosocial criminology

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The future of biosocial criminology

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Biosocial criminology is the fastest growing line of research within the field of criminology. Even so, there remain significant challenges to this perspective, including biased journal editors, unqualified reviewers, discrimination in hiring, and a lack of courses taught on biosocial criminology. This study reviews these barriers and discusses what needs to be accomplished in the future in order for the biosocial criminological perspective to continue to grow at an exponential rate. We couch our discussion in terms of teaching and training students, departmental hiring, the peer review process, scholarly contributions, and professional development. We conclude by drawing attention to the significant contributions of biosocial criminology and its continued march to the top of the discipline.

Keywords: association; biosocial criminology; bias; future; genetics; ideology

Never before in the history of criminology has as much research been produced by a group of scholars working from a singular perspective in such a short period of time as has been by biosocial criminologists. In a little less than ten years, biosocial criminologists have published literally hundreds of book chapters, even more empirical articles, and a sizeable number of books on the topic. These pieces of scholarship have explored most of the key issues of interest to criminologists, they have tested mainstream criminological theories using biosocial methods, and they have produced some of the most challenging findings that the discipline has ever witnessed. Perhaps even more importantly is that mounds of students are flocking to enroll in biosocial courses, graduate students are now beginning to specialize in biosocial criminology, and some of the top criminology programs in the nation are hiring multiple biosocial criminologists in order to offer a concentration in the bio-social perspective. The end result is that the field of criminology has been affected by the biosocial revolution much quicker and much more saliently than anyone could have imagined.

Not all criminologists, however, believe that the biosocial perspective should occupy a fundamental position in the field of criminology. These critics – many of whom have ‘status’ in the field – patently oppose biosocial criminology and those criminologists employing such a perspective. Certain journal editors, for instance, view themselves as gatekeepers of knowledge and strategically prevent biosocial

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studies from being published in their journals. In order to maintain the guise of being fair and impartial scholars, they hide behind the review process as though it obviates them from being biased against certain bodies of research or from stamping out studies submitted for publication by biosocial criminologists (Gartner, Baumer, & Osgood, 2014). Reviewers – who are hand chosen by editors – often fall in line with these editors and anonymously offer critiques that amount to nothing more than smoke and mirrors or that create standards that no social science study could meet. When it comes to biosocial criminology for these editors, the review process does not really matter as it is simply a means to an end, with the end being purging biosocial studies from selected criminological journals.

Outspoken critics of the biosocial perspective, however, are not always involved in the review process; rather, critics often come in the form of seasoned criminologists who view the biosocial perspective as threatening to their credibility and, even more importantly, to their intellectual legacy. As a result, they frequently engage in mud-slinging techniques to tear down biosocial criminologists, to scare students away from studying biosocial criminology, or to prevent biosocial criminologists from being recruited and hired. Some have even stooped to the level of trying to redefine the biosocial perspective and what it means to be a ‘real’ biosocial criminologist (see Barnes et al., 2014 for a discussion). Their hope, of course, is that by reconstructing the biosocial perspective, they can mold it in such a way so that it is compatible with their previous research findings, thereby preserving their intellectual legacy.

Despite these non-empirical attacks on scholarship, there can be little doubt that the truth usually prevails when it comes to science. The rate at which all of this plays out, however, varies considerably, and for areas of research that are fraught with controversy, the rate can slow to a snail’s pace. What this necessarily means is that the development and ultimate triumph of new perspectives, such as the biosocial perspective, is typically far from linear, with politics and the status quo often interfering (Wright & Cullen, 2012). Such is the current case with the biosocial perspective. In order to shepherd along the biosocial perspective and overcome the roadblocks that currently exist, we provide some guidance as to what the biosocial perspective needs to accomplish in the not-too-distant future. Our discussion focuses on five topics, and while these do not represent an exhaustive list, they are the ones that we view as the most important at this point in time and the ones that can actually be changed through concerted efforts.

Teaching and training students

Perhaps the most important hurdle to overcome in order for the biosocial perspective to continue to grow centers on the lack of college-level courses that are devoted solely to biosocial criminology (Wright et al., 2008). There are only a handful of criminology programs in the world that offer biosocial criminology courses taught by biosocial criminologists. Of course, there can be little doubt that most introductory criminology courses expose students to biosocial criminology by spending a day or two on biological and biosocial theories of crime. There are at least three problems with this approach. First, most of these theory courses use some type of introductory criminology textbook and most of these textbooks provide rather skimpy coverage of the biosocial perspective (Wright & Miller, 1998). All too often, contemporary biosocial criminology is ignored and the coverage of

biology focuses on archaic biological theories, such as XYY syndrome or Sheldon's work on linking body morphology to crime. Worse still is that many introductory textbooks invariably tie contemporary biosocial criminology to Lombroso's work on the criminal man, thereby providing an illusion that cutting-edge biosocial research is not all that different from early biological theories that are known to be incorrect.

The second problem with covering the biosocial perspective in a regular theory course is that the instructors of these courses are typically not experts in biosocial criminology and, for the most part, probably have very little interest in the perspective. During the lectures that are devoted to biosocial criminology, they likely rely heavily on what is covered in the book (see the problems with this discussed above), and when students have questions about some of the more controversial issues or complex topics related to biosocial criminology, these instructors are ill-equipped to provide informative and accurate answers. Moreover, when confronted with questions about the dangers of biosocial criminology, these instructors likely allow their own biases to surface, many of which would simply reinforce the belief that biosocial criminology is dangerous and oppressive. Against this backdrop, students likely leave these courses without a full appreciation of the biosocial perspective or with inaccurate information that likely will not inspire them to take seriously the biosocial correlates to crime, delinquency, and antisocial behaviors.

The third major issue with only covering biosocial criminology in an introductory course is that there simply is not enough time to pay due diligence to the perspective in just a few short days or in a week or two. The biosocial perspective is vast, covering research and theory from a multitude of disciplines, and as a result, students are confronted with new words, concepts, and mechanisms that they have never been exposed to previously. In order for students to fully understand the connection between biosocial factors and crime, a significant amount of time has to be spent on covering the background information, such as the regions of the brain, the logic of twin-based methodologies, and the basic principles of human evolution and genetics. Failure to provide this background means that students are in a position where they simply cannot understand the biosocial perspective at a level that would allow them to engage in intelligent and informed conversations on the topic.

Given these issues with students being exposed to the biosocial perspective, what needs to change? To address this question, we offer two different answers: one pertaining to undergraduate programs and one pertaining to graduate programs. At the undergraduate level, a course devoted to biosocial criminology should be offered on a regular basis and taught by an instructor who is knowledgeable and interested in the subject matter. This will ensure (1) that students interested in the perspective are able to learn more about it and (2) that the material is being taught in a fair and impartial manner. A single class in biosocial criminology taught by a single instructor, however, can easily be augmented by identifying courses in other departments that would overlap with the biosocial perspective. It is not uncommon, for example, for psychology departments to offer courses on the brain and behavior, on behavior genetics, or on the hormonal influences on phenotypes. Additionally, undergraduate programs could consider inviting biosocial criminologists to campus for discussions on various issues of biosocial criminology geared directly toward undergraduate students. These are just a few of the many ways in which undergraduate programs can make biosocial criminology a more integral part of their curriculum. And, it is our experience that biosocial courses are some of the

most sought-after courses from undergraduate students, making it all the more necessary to take seriously the different ways of highlighting biosocial criminology.

At the graduate level, even more significant changes need to occur. All criminology graduate programs, including PhD programs as well as those with only a terminal master's degree, should offer a course in biosocial criminology. These courses should stand alone and be separate from a traditional criminological theory course. By offering such a course, students will have the opportunity to be exposed to the most rapidly growing perspective in the field of criminology and they will also be exposed to the cutting-edge research from multiple fields of study. Programs should also consider making a biosocial criminology course part of the required curriculum for PhD students and perhaps even for master's students. Just as graduate students are now required to know the ins and outs of criminological theory and research methods and statistics in order to earn their degree, they should also be required to know the biosocial perspective at a level that allows them to engage in intelligent conversations on this topic. Failure to equip graduate students with this knowledge will place them at a serious disadvantage as the biosocial perspective continues to grow.

Beyond simply offering a biosocial criminology course, programs also need to train graduate students in the statistical and methodological techniques used in biosocial research. The types of analytical tools used in biosocial criminological research are quite different from those used in standard criminological research and in the social sciences. While these techniques are 'borrowed' from other fields of study, such as behavior and molecular genetics, most graduate students are never exposed to them and they are not taught the ways in which they can be applied to criminological data. This is a serious oversight for three main reasons. First, criminology PhD students, students who are supposed to be well versed in methods and statistics, are entering into the academy without the requisite skills to teach biosocial criminology and to answer student questions pertaining to it. What this necessarily means is that the next generation of graduate students will also fail to learn adequately about biosocial criminology. Second, criminology faculty members are frequently asked to review biosocial manuscripts and without having a background in biosocial methods and statistics, these reviewers are not in a position to offer insight into the strengths and limitations of these studies. As a result, their review is likely to be limited in scope, grounded in their own views about biosocial criminology, and uninformative in terms of the appropriateness of the methodology employed. Third, without knowing the intricacies of the methods and statistics used in biosocial criminological research, faculty members are unable to provide informed, intelligent, and accurate critiques of biosocial research. If they disagree with the findings, they are not in a position to identify the limitations and problems with the study; likewise, if they accept the findings, they are not in a position to determine whether the findings are robust and the result of an appropriate methodology. In short, the biosocial research is inaccessible to them. This is particularly salient given the volume of biosocial research being produced and that the bulk of it is a critique of traditional criminological theory and research.

Criminology is a heavily quantitative field, with the overwhelming majority of all published studies relying on statistical data. Most criminology graduate programs (particularly those offering a PhD), moreover, mirror this approach and are also geared toward quantitative methods and techniques, and students thus are required to complete a significant number of courses covering these topics. PhD

students who are interested in pursuing a research agenda typically go beyond the minimum and enroll in more advanced statistical courses. These advanced courses, such as multilevel modeling, structural equation modeling, and propensity score matching, are offered in many programs on a rotating basis. It would be easy to integrate a biosocial criminology methods and statistics course into this rotation, which would teach students about some of the most frequently used approaches by biosocial criminologists, including adoption and twin-based research designs, ACE modeling, and data management and manipulation, along with a host of other topics. Successfully completing such a course would provide students with the adequate knowledge to be able to analyze biosocial research on a highly informed level. The net result of this enhanced training would be the production of students who are better equipped to inform policy and train future scholars in criminology and criminal justice.

Last, we would point out that programs should begin to consider the possibility of allowing graduate students to specialize in biosocial criminology. At some programs, an array of specializations are available, including policing, corrections, crime prevention, macro-level criminology, and micro-level criminology. Why not allow students to immerse themselves in an area that they might be truly passionate about (e.g. biosocial criminology) and offer a series of classes (both empirical and methodological) on the topic which culminates in them taking a comprehensive examination (or comprehensive examination questions on the topic) that tests them over their area of research interest? This is the current practice with other perspectives and theories, so it would not entail a revamping of the curriculum, but rather an addition to the processes that are already in existence. Some programs are beginning to move in this direction and in order to keep pace with them, other programs should follow their lead.

Departmental recruitment and hiring

The above discussion about the teaching and training of students is likely to be met with the reaction that most programs do not have a biosocial criminologist on faculty capable of teaching such courses. This most certainly is true, but the reason it is true is because faculty at most criminology programs are not thrilled about the idea of having a biosocial criminologist as a colleague, not because there is a lack of biosocial criminologists. A quick perusal of job postings in criminology programs reveals that not a single one is advertising for a biosocial criminologist, even though virtually every other specialization is mentioned, ranging from a feminist criminologist to someone who can teach courses on policing and corrections. Indeed, in our experience, we have only ever seen two job postings in criminology programs wherein a biosocial criminologist was explicitly sought. If programs decide that they want to train students in biosocial criminology, then they must be willing to devote resources to this effort and recruit biosocial criminologists through their job postings or through more informal channels.

Developing a job posting that includes biosocial criminology as one of the areas that the program is looking to hire would accomplish two things. First, it would likely entice biosocial criminologists who might not have considered applying to that program to actually send their application materials to that program. As a result, a larger pool of applicants who are able to teach biosocial criminology courses and to conduct biosocial research would be available to select from.

Second, it would send a message to the entire faculty that biosocial criminology is valued, that it is an area that the program is going to expand, and that it is not an area that is going to be discriminated against during the job search. All too often, entire programs are opposed to hiring biosocial criminologists or sometimes just a handful of faculty members lead charges against hiring a biosocial criminologist. This is why even highly-qualified ABDs who have specialized in biosocial criminology often find it difficult to secure employment. A major barrier has historically been – and continues to be – the trepidations that faculty have about hiring a biosocial criminologist. If these trepidations can be eliminated or, at the very least, reduced, then the hiring of biosocial criminologists would once again become about merit, not about what is ideologically or politically correct.

Besides being able to offer courses in biosocial criminology and perhaps attracting students interested in the biosocial perspective, a concerted effort to hire biosocial criminologists would no doubt increase the intellectual diversity of the program. Biosocial criminologists produce research that is quite different from what most mainstream criminologists produce, and they introduce students and faculty alike to findings that they never have been exposed to previously. This type of intellectual diversity makes for great debates and it also allows students to emerge from the program more well-rounded, possessing knowledge of areas of research that might help to guide their research agenda whether or not it ends up having anything to do with biosocial criminology. Most importantly, though, is that the addition of a biosocial criminologist to the faculty of any criminology program will ensure that students do not necessarily reify the status quo, but rather have their deeply held beliefs about the causes and correlates of criminal behavior challenged. Challenging existing evidence and scientific ‘truths,’ after all, is at the heart of scientific progress.

Journals and the peer review process

Although more and more criminology journals are publishing biosocial studies on a regular basis, there remain a number obstacles to publishing biosocial research in some criminology journals. Some of these obstacles have been intentionally constructed, others operate on a subconscious level, and still others are byproducts of the anti-biological movement that dominated criminology until about ten years ago. Regardless of the origin of these obstacles, the consequence is that biosocial studies are frequently evaluated in a way that is not consonant with how other lines of research are typically evaluated for publication. In general, we see the disparate evaluation of biosocial research stemming from two sources: journal editors and reviewers. Before discussing each of these in detail, we should be clear at the outset that there has been tremendous change in how biosocial research is reviewed by criminologists and ultimately processed by editors at most criminology journals. About a decade ago, there was so much animosity toward biosocial research that it was nearly impossible to get a fair shake from the vast majority of journals. Now that situation has been somewhat turned on its head and most journals are open to publishing biosocial research, most reviewers attempt to evaluate biosocial research fairly, and most editors process biosocial research in a judicious manner. With that said, there is room for improvement at most journals and, at some journals, a significant amount of change needs to occur.

The problems that still do exist with the review process at certain journals stem, in large part, from the editors of those journals. Editors, after all, control the journal. Besides making all publication decisions about each manuscript, they are the ones who select the reviewers, they are the ones who appraise the manuscript and sift through the reviewer comments, and they are the ones who can ‘force’ authors to mold the manuscript in certain ways before publishing the manuscript. Each of these editorial ‘powers’ will be discussed briefly below, but keep in mind that in academics, there is likely no other position that has as much unchecked power and that can exert so much influence on a field than that of a journal editor. And, the editors of the most prestigious journals in the field have even greater power as the articles published in these journals are viewed as more influential and more impactful than those in other journals.

To begin, journal editors have the capacity to hand-select reviewers for each submitted manuscript. Although editors often claim that they are unbiased because they use a double-blind review process (e.g. Gartner et al., 2014), any academic knows that it would be easy to sack a manuscript by simply selecting from a pool of reviewers who knowingly are against a particular topic. Control theorists, for example, would be more likely to provide a harsh critique of a paper showing support for social learning theory than, say, another social learning theorist. The converse is also true, wherein certain reviewers who are sympathetic to a particular topic or who are supporters of a particular perspective would be likely to provide a favorable review of the manuscript (Ferguson, 2011). Thus, anytime editors exclaim that they are fair and impartial because of a double-blind review process should be viewed with the utmost skepticism because as any journal editor, author, or reviewer can attest, the review process is often far from blind and sometimes can be far from impartial.

When it comes to biosocial criminology manuscripts, the pool of reviewers to choose from who are against this perspective is relatively large, probably larger than any other criminological topic. As a result, a journal editor who wishes to censor biosocial research from their journal can easily do so by selecting reviewers who hold anti-biosocial views. This would be an easy task for any editor, particularly those who are vested in preventing certain bodies of research from being published in their journals or who want to convey certain ‘messages’ to the rest of the field. These editorial tactics might be why there is so much variability in terms of where biosocial studies are published and how frequently they appear in certain journals. Some journals, such as *Criminal Justice and Behavior*, publish biosocial research regularly, whereas others, such as *Journal of Research in Crime and Delinquency*, have not published a single biosocial study in the past ten years. For a single journal not to publish at least one biosocial article during the past decade is all the more amazing when juxtaposed against the fact that biosocial research has appeared in *every* other mainstream criminology journal.

In addition to selecting reviewers, journal editors are also responsible for reading through the reviewer comments and the actual manuscript. While they may follow reviewer recommendations, they are not required to do so. What this necessarily means is that if an editor is against biosocial research – and even if the reviewers are all positive and advocate for publication – the editor is not bound to follow the recommendations of the reviewer and, instead, can reject the manuscript without explanation. Of course, this is not necessarily harmful in the review process as good manuscripts might be reviewed negatively and sub-par manuscripts might

be reviewed positively. So, editors should have discretion when it comes to evaluating reviewer recommendations. But, it does provide a layer of power to editors that is unparalleled in the rest of the publication process and it allows journal editors to engage in agenda politics if they so desire. By doing so, they can stamp out certain studies from being published while, at the same time, promoting the publication of others that they may see as more in line with their views and beliefs or the prevailing ideology of the discipline.

Also of considerable importance – but often overlooked – is the ability for editors to shape a manuscript in any way that they feel fit. Upon receiving a decision of ‘revise and resubmit,’ most authors will change their manuscript in accordance with the reviewer comments in order to have their paper accepted for publication. Editors of some journals, moreover, also inject their own concerns and provide a structured outline of how the manuscript must change before it will be accepted for publication. An editor, for instance, might require an author to tone down their language, change the measurement of certain scales, or even to include summary tables that highlight research previously published on a particular topic. Eventual publication of the manuscript might hinge on the author making all of these changes; disagree with the editor and the paper will be rejected. In this way, editors are able to mold manuscripts to make them more or less controversial, and even manipulate findings by requiring certain measurement approaches or analytical strategies.

Besides editors, reviewers are also an integral part of the review process and they also are able to affect publication decisions in a way that is not always consonant across lines of research (Ferguson, 2011). It takes no stretch of the imagination to recognize that some reviewers are ideologically opposed to biosocial research and thus, employ virtually any tactic to provide a harsh critique of the submitted manuscript (Barnes et al., 2014). There is not much that can be done with these types of reviewers (beyond having editors disregard their reviews) and fortunately, this type of outright dismissal of biosocial research is becoming the exception rather than the rule. The more common scenario, however, is that reviewers of biosocial research are not equipped – largely because of their graduate training – to be able to evaluate these studies. Biosocial research uses methodologies, statistical techniques, and nomenclature that is unique to the biosocial criminological perspective. Consequently, criminologists without a background in biosocial research are unable to provide solid critiques of biosocial research. What is important is that this works both ways; shortcomings of the manuscript are not able to be identified, and strengths of the paper are often overlooked. The review process, therefore, is not nearly as effective for biosocial research as it is for studies that use more traditional methodological and analytical techniques.

With all of this in mind, it is clear that the review process for biosocial studies at a number of criminology journals is broken and unfortunately, there is no quick fix. Fixing this process will depend on what was discussed previously, that is, the ability to (1) teach and train students in biosocial criminology and (2) recruit and hire faculty who are experts in biosocial criminology. If these come to fruition in the future, then they will have a trickle-down effect where they will help improve the review process of biosocial research.

There is good news, though. Now, more than any other time in the history of criminology, biosocial research is occupying a central position in the pages of many top-notch journals. For those journals where biosocial research is evaluated fairly and where biosocial studies appear on a consistent basis, they are quickly climbing

the impact-factor ladder. A great illustration is *Journal of Criminal Justice*. In recent years, this journal has become one of the most biosocially friendly journals in criminology. Perhaps as a direct result, the journal is quickly escalating in terms of its ranking among all criminology journals and has one of the highest impact factors. In just one year, the impact factor of the journal skyrocketed by about 100% and is now on the heels of becoming the top-ranked criminology journal, at least in terms of impact factors. The message is simple: When all research (including biosocial research) is evaluated fairly and equitably and when journal editors are devoid of political agendas, good research is published and ultimately cited at a rate that far outpaces that which is published at other journals.

Scholarly contributions

The ultimate contribution that the biosocial perspective makes to the field of criminology will rest on its contributions to the understanding of antisocial behaviors. Within a short period of time, the biosocial perspective has already made significant contributions in this arena by showing, for instance, that genetic influences are involved in the etiology of crime and delinquency, that shared environmental influences have very little influence, and that non-shared environmental influences account for about one-half of the variance in most antisocial phenotypes (Barnes et al., 2014). Other key biosocial findings have revealed that much mainstream criminological research is misspecified, that genetic and environmental factors often work synergistically, and that the structure and functioning of the brain is integral to the understanding of criminal involvement (Beaver, 2013). These, of course, represent just a small smattering of some key biosocial findings, but they are findings that are already beginning to reshape what is known about the causes and correlates of crime and delinquency.

The continued advancement of the biosocial perspective – particularly the continued uncovering of new and important pieces of information about the causes of crime – rests on two key factors: the collection of biosocial criminological data and the development of biosocial theories that piece together the known biosocial findings. We will begin by discussing the collection of biosocial data. The rise and fall of any perspective is ultimately determined by empirical findings; if the findings are supportive of the perspective, then it continues to expand; if the findings are in disagreement with the perspective, the perspective either dies or is refined. Unfortunately, criminological datasets continue to be developed without collecting any information about the potential biosocial correlates to crime. This is a serious oversight for three reasons. First, existing biosocial findings have shown that without adequately controlling for genetic influences, the effects of environmental correlates are upwardly biased (Harris, 1998). Samples that are not genetically informative make it impossible for researchers to address this issue. Second, samples that do not include any biosocial measures are unable to inform biosocial research, they are unable to test controversial propositions about the biosocial perspective, and they are not taking into account the fastest growing perspective in the field of criminology. As a result, the scope of such a sample is largely limited and unlikely to make any groundbreaking findings. Third, some large funding agencies are now requiring social science datasets to have a genetic component to them. In fact, the continued funding of some large-scale samples is contingent on the inclusion of genetic information. This might begin to explain why some sociological criminologists who are the

principal investigators (PIs) on large datasets (e.g. the Family and Community Health Study) are now beginning to fold biosocial research into future waves of data collection. While such a requirement may force more biosocial samples into existence, it should also provide reason to pause and consider whether the PIs on these projects truly understand and are interested in biosocial criminology or whether they are simply constructing a façade in order to be awarded additional grant dollars and in order to be able to add more lines to their curriculum vitae. Only time will tell, but to date, the PIs of some of these projects have done more to hurt the biosocial perspective than to help it (see Barnes et al., 2014 for a discussion).

The lack of biosocial data was one of the key ways that the biosocial perspective was marginalized during the 1970s, 1980s, and 1990s. After all, it is convenient to be able to make arguments against biosocial influences on crime when there are no data to test this possibility. In the 2000s, however, this began to change as large nationally representative datasets that were not collected by criminologists, but by interdisciplinary teams, began to emerge. The National Longitudinal Study of Adolescent Health (Add Health), for example, is the largest nationally representative sample of American youth, and it has been used widely by (non-biosocial) criminologists for years. When the biosocial perspective began to emerge, and biosocial criminologists began searching for biosocial samples that could be analyzed, the Add Health was an obvious choice. The reason is because it is genetically informative, as it includes kinship pairs along with specific genetic polymorphisms. As a result, this sample represented the key dataset that was used (and that continues to be used) by biosocial criminologists. Once biosocial criminologists began to use the Add Health on a widespread basis, a criminological witch-hunt ensued. The Add Health was made to seem as though it had fatal flaws, and some journals, such as *Crime and Delinquency*, created editorial policies barring any more studies using the Add Health from being published in the journal. Other biosocial critics have argued that biosocial criminologists have overused these data and there simply is nothing else that can be offered from them. Such a view by criminologists is, of course, nothing more than dressed-up rhetoric, particularly when considered against the fact that (1) there are more than 10,000 Add Health users (certainly not all of these are biosocial researchers) and (2) that the National Institutes of Health just awarded the Add Health a \$22.7 million grant to collect a fifth wave of data on the Add Health participants. Against this backdrop, outside of biosocial critics, it does not appear that experts in other fields view the Add Health as only being used by biosocial researchers, as being dried up, or as being unimportant.

Besides the Add Health, there are other datasets that can be used by biosocial criminologists, including the National Longitudinal Survey of Youth, the Early Childhood Longitudinal Survey, Birth Cohort, the Early Childhood Longitudinal Survey, Kindergarten Class, and the National Survey of Midlife Development in the United States data to name just a few. Even so, these datasets were not developed solely for the use of criminologists. What is needed is a large-scale study developed by criminologists that includes detailed information across multiple perspectives. Doing so would allow for a thorough sample to test competing perspectives, competing ideas, and even competing research designs. In the absence of such a dataset, biosocial criminologists will continue to be held to data standards that no other perspective is held to. After all, when was the last time that a journal put forth an editorial policy to ban any research that uses a non-biosocial sample?

The collection of biosocial data will certainly increase what is known about the biosocial underpinnings to antisocial behavior. At the same time, it will likely facilitate the creation of specific biosocial criminological theories. One of the more frequent critiques against the biosocial perspective is that it lacks a unifying theoretical framework. Given that criminology is heavily theory-based, this critique takes on all the more saliency. There are a handful of biosocial theories, including Moffitt's (1993) developmental taxonomy that focuses on biological and environmental influences for both adolescence-limited offenders and life-course-persistent offenders. Moffitt's theory, and some others, though, are the exception to the rule. Not all emerging perspectives, however, have to begin with a theory and for the past ten years, the biosocial perspective has focused more on empirical evidence and less on theory. Now, however, a lot is known about the biosocial correlates of crime and so the time is ripe for biosocial theories to begin to emerge. By developing such theories, and in combination with the creation of biosocial datasets, the biosocial perspective will be able to be evaluated by testing key hypotheses and principles. A solid biosocial theory with testable hypotheses would provide an anchor to the biosocial perspective and would likely help it to resonate with mainstream criminologists, most of whom view theory as being integral to the field.

Professional development

The last key way that the biosocial perspective needs to change in the upcoming years is by fostering professional development of biosocial criminologists. Although many possibilities exist, we have identified one main way that this can be accomplished: through the creation of associations for biosocial criminologists. In most fields of study, including criminology, many sub-perspectives of a discipline simply create a division within the largest society and thus are connected directly to that association. In criminology, for instance, there are nine divisions within the American Society of Criminology. This practice might work well for perspectives that are closely aligned with the dominant ideology of the field, but it would not work so well for a perspective that, in many ways, is a contradiction to much of the field's work. Rather than attempting to create a division of biosocial criminology within the American Society of Criminology, biosocial criminologists would be better suited to seek out (or develop) associations and societies that are only for biosocial criminologists. Doing so would accomplish three main things: (1) It would show that biosocial criminology is a standalone discipline, (2) it would provide a forum for biosocial criminologists that is free from ideology, and (3) it would allow for biosocial criminologists to interact at annual meetings without it being watered down by traditional criminologists.

Relatively recently just such an association was developed, the Biosocial Criminology Association (BCA). The BCA is the first biosocial criminology association ever developed. It already has a relatively large membership and it has an annual meeting where biosocial criminologists can discuss their research with other biosocial criminologists and academics from a wide variety of related disciplines. While it is still in its early stages, the BCA is precisely the type of organization that is needed to foster professional development among today's biosocial criminologists. More information about the BCA, including membership information, is available at www.biosocialcrim.org.

Concluding remarks

In the end, we remain hopeful that the biosocial perspective will continue to be welcomed by the criminological community and that it will be evaluated not by PC-police or social pundits, but rather by the quality of the studies and the robustness of the findings. At this time, we must temper our enthusiasm because as Max Planck pointed out, ‘A scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die and a new generation grows up that is familiar with it.’ We hope that the field of criminology is different and that hard scientific evidence, not the death of self-anointed criminological bigwigs, is all that is needed for the truth to prevail. Whether it be by scientific findings or death, though, we have no doubt that the biosocial criminological perspective will ultimately be viewed as the zenith of the discipline.

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