



International Society for Interpersonal Acceptance and Rejection

Rejection Hurts: Exploring the Shared Neural Mechanisms Underlying Physical and Social Pain

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When individuals feel rejected or left out, they often describe their feelings with physical pain words, complaining of “hurt feelings” or “broken hearts.” In fact, using physical pain words to describe experiences of rejection or exclusion is common to many different languages (MacDonald & Leary, 2005). However, is feeling socially estranged truly comparable to feeling physical pain, or is this merely a figure of speech?

Our research over the past several years has suggested that the ‘pain’ of social rejection (‘social pain’) may be more than just a figure of speech. Through a series of studies, we have shown that socially painful experiences, such as social exclusion, rely on some of the same neural regions that typically process the distress of physical pain (Eisenberger & Lieberman, 2004). Indeed, such an overlap makes good sense from an evolutionary standpoint. If broken social ties are experienced as ‘painful’, an individual will be more likely to avoid situations that might threaten social ties or lead to rejection, hence increasing one’s likelihood of inclusion in the social group and one’s chances of survival. Here, I will describe some of the research that we have been doing to explore the notion that physical and social pain share similar neural substrates and will examine some of the potentially unexpected consequences of such an overlap.

Does Rejection Hurt?

To begin to explore the neural substrates of social rejection, we conducted a study in which participants completed a neuroimaging session while they were socially excluded (Eisenberger, Lieberman, & Williams, 2003). In this study, participants were led to believe that they would be scanned while playing an interactive ball-tossing game over the internet (‘Cyberball’), with two other individuals who were also in fMRI scanners. Unbeknownst to participants, they actually played the game with a preset computer program. Participants completed one round of the ball-tossing game in which they were included for the entire game and a second

round in which they were excluded by the other players partway through the game, when the players stopped throwing them the ball.

Upon being excluded from the game, compared to when being included, participants showed increased activity in two neural regions that are frequently associated with the unpleasantness of physical pain—the dorsal anterior cingulate cortex (dACC) and the anterior insula. Moreover, individuals who showed greater activity in the dACC reported feeling more upset by the rejection episode. Thus, neural responses to an episode of social exclusion recruited some of the same neural regions that are involved in the distress of physical pain, supporting the commonsense notion that rejection really does ‘hurt.’

Our subsequent studies have supported this initial finding. We have found that real-world experiences of rejection are associated with pain-related neural activity, such that individuals who reported feeling more rejected in their everyday social interactions across a 10-day sampling period also showed greater pain-related neural activity to a scanner-based episode of social exclusion (Eisenberger, Gable, & Lieberman, 2007). We have also found that, for rejection-sensitive individuals, merely looking at an individual displaying a disapproving facial expression (which signifies that one could be rejected) can lead to

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activation in these pain-related neural regions as well—even though there may be no direct experience of social pain (Burklund, Eisenberger & Lieberman, 2007). Thus, in sum, experiences of rejection seem to rely, in part, on neural regions often associated with the distressing experience of physical pain.

What are the Consequences of a Physical-Social Pain Overlap?

To the extent that physical and social pain processes overlap, one might expect some interesting and potentially surprising consequences. For example, if physical and social pain sensitivity are governed by the same underlying system, then individuals who are more sensitive to one kind of pain should also be more sensitive to the other kind of pain. As evidence of this, we have shown that individuals who are more sensitive to physical pain are also more sensitive to social pain. In one study, participants, who showed greater sensitivity to a heat pain stimulus at baseline (reported greater pain at lower levels of heat), also reported feeling more rejected by a subsequent experience of social exclusion (Eisenberger, Jarcho, Lieberman, & Naliboff, 2006). In a second study, we demonstrated that individuals with the rare form of the mu-opioid receptor gene (*OPRM1*), who are known from previous research to show greater physical pain sensitivity, also reported higher levels of rejection sensitivity and evidenced greater pain-related neural activity (dACC, anterior insula) in response to an episode of social exclusion (Way, Taylor, & Eisenberger, 2009).

A second consequence of a physical-social pain overlap is that factors that increase or decrease one kind of pain should affect the other kind of pain in a similar manner. To examine this consequence, we explored whether social support, which is typically thought to lessen social pain, could also reduce physical pain (Master et al., 2009). In this study, female participants received a series of painful heat stimuli and were asked to rate the unpleasantness of each while they went through a number of different tasks, including holding their partner's hand, a stranger's hand, or a squeezeball and viewing a picture of their partner, a stranger, or a neutral object (a chair). We found that participants reported significantly less pain while holding their partners' hand compared to when they were holding a stranger's hand or an object. Interestingly, participants also reported feeling significantly less pain while simply viewing pictures of their partner compared to when they were viewing pictures of a stranger or an object. Thus, simple reminders of one's social support figure may be capable of reducing physical pain, in addition to social pain.

As a second test of the notion that factors that alter one kind of pain should alter the other in a similar manner, we have also examined whether Tylenol, a common physical painkiller, could reduce experiences of social pain as well (DeWall et al., in press). In a first study, participants took either Tylenol or placebo for 3 weeks and were asked to report on their daily levels of 'hurt feelings' over the course of the 3 weeks. Results showed that participants who had taken Tylenol showed a significant reduction in daily hurt feelings over the 3-week period, whereas participants who had taken

placebo showed no change in hurt feelings. In a second study, a separate group of participants took either Tylenol or placebo each day for a 3-week period and then completed the Cyberball ball-tossing game in the fMRI scanner at the end of the 3 weeks. Consistent with the first study, participants who had been taking Tylenol showed significantly less activity in pain-related neural regions (dACC, anterior insula) in response to being socially excluded. Thus, because of the overlap in the neural systems underlying physical and social pain, Tylenol, a physical painkiller, may be capable of reducing the pain of social exclusion in addition to the pain of other physical ailments.

Other Possible Consequences of a Physical-Social Pain Overlap

There are several other possible consequences of a physical-social pain overlap that have not yet been directly explored. One of these may be the aggressive behaviors that are observed following both physical and social pain. Aggressive action makes sense if one is in danger of being physically harmed, and not surprisingly, one consequence of painful stimulation in animals is aggressive attacks on a conspecific. However, aggressive acts make less sense if one is being socially harmed, as aggression is presumably not conducive to strengthening or mending social ties. Nonetheless, it has been well-documented that the experience of social rejection can lead to aggressive acts as well. It is possible that aggressive responses to rejection may be a by-product of an adaptive response to physical pain, which was subsequently co-opted by the social pain system.

Another possible consequence of this overlap may be observed in the similar physiological stress responses to both physical threat and social threat. It is well-known that physical threat induces physiological stress responses to mobilize energy and resources to deal with the threat. However, these same physiological responses are responsive to social threats as well, even though it is unlikely that it would require significant energy resources to deal with being socially rejected or left out. However, if the threat of social rejection is interpreted by the brain in the same manner as the threat of physical harm, biological stress responses might be triggered to both for the simple reason that these two systems overlap.

Conclusions

Taken together, the research summarized here supports the notion that being rejected "hurts." Not only do we use physical pain words to describe rejection experiences but some of the same neural regions that process physical pain, process social pain too. One of the implications of these findings is that episodes of rejection or relationship dissolution can be just as damaging and debilitating to the person experiencing those events as episodes of physical pain. Thus, even though we may treat physical pain conditions more

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seriously and regard them as more valid ailments, the pain of social loss can be equally as distressing, as demonstrated by the activation of pain-related neural circuitry to social disconnection as well.

It is important to remember, though, that while painful in the short-term, feelings of distress and heartache following broken social relationships also serve a valuable function, namely to ensure the maintenance of close social ties. To the extent that being rejected hurts, individuals are motivated to avoid situations in which rejection is likely. Over the course of evolutionary history, avoiding social rejection and staying socially connected to others likely increased chances of survival, as being part of a group provided additional resources, protection, and safety. Thus, the experience of social pain, while distressing and hurtful in the short-term, is an evolutionary adaptation that promotes social bonding and ultimately survival.

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Source: Google Images

Way, B.M., Taylor, S.E., & Eisenberger, N.I. (2009). Variation in the mu-opioid receptor gene (OPRM1) is associated with dispositional and neural sensitivity to social rejection. *Proceedings of the National Academy of Sciences*, 106, 15079-15084.

MAILING ADDRESS CHANGE FOR SUBMITTING ISIPAR DUES PAYMENTS

In the past, dues payments sent by postal mail were sent to Parminder Parmar in Pennsylvania. In December, a change was made to route all dues payments paid by check or money order through ISIPAR's Central Office located at the address below. Dues can still be paid electronically using PayPal with www.paypal.com and Parminder Parmar's email address (prp104@psu.edu) as the recipient. However, please direct checks or money orders via the postal service to ISIPAR's Central Office (see address below).

ISIPAR Membership Applications continue to be submitted electronically using the form available on the website at www.isipar.org. The website also contains an up-to-date list of dues amounts based on current World Bank Categories.

Both a membership application and dues payment must be received before membership in the Society can be activated. Correspondence and/or dues notification for expired memberships comes from ISIPAR's Executive Director, Ronald P. Rohner (rohner@uconn.edu or rohner.isipar@gmail.com). The mailing address of ISIPAR's Central Office is:

University of Connecticut
c/o Ronald P. Rohner, Room 208
Human Development and Family Studies
348 Mansfield Road
Storrs, CT 06269-2058 USA

2010 ELECTION CANDIDATES

Soon, ISIPAR members with paid-up status will be sent an electronic ballot and will be asked to vote for a new President-Elect, Secretary-Treasurer, and Regional Representatives from six areas of the world. These include Central & South Africa, East Asia, Europe, North America, South America, and South Asia. Candidates are listed below. We encourage you to join ISIPAR or pay past-due dues before the election. Please do so now at <http://www.isipar.org/Membership.html>.

CANDIDATE FOR PRESIDENT-ELECT



Abdul Khaleque Ph.D., earned his B. A. Honors in Philosophy from the University of Dhaka, Bangladesh; M. Sc. in Applied Psychology from University of the Punjab, Lahore, Pakistan; M. A. in Family Studies from University of Connecticut, USA; and Doctorate in Psychology from Catholic University of Leuven, Belgium. Currently he is a Senior Scientist in the Ronald and Nancy Rohner Center for the Study of Interpersonal Acceptance and Rejection in the Department of Human Development and Family Studies, University of Connecticut. He is also a Professor in Residence in the Department of Human Development and Family Studies at the University of Connecticut. Formerly he was a Professor of Psychology at the University of Dhaka in Bangladesh. He was also a Visiting Fellow in the Department of Psychology at the University of Delhi, India; and a Visiting Faculty at the University of Otago in New Zealand. Finally, he is a past President of the Bangladesh Psychological Association, a former Vice President and General Secretary of the South Asian Association of Psychologists, a life member of the Human Factors and Ergonomics Society of the USA, and a member of the American Psychological Association. His current research interests include interpersonal acceptance-rejection and lifespan human development, specifically parental acceptance-rejection, intimate partner acceptance-rejection, and teachers' acceptance-rejection. He has published nearly 100 research articles, approximately 25 book chapters, and 12 books in psychology and related areas.

CANDIDATE FOR SECRETARY-TREASURER

Shaila Khan, Ph.D., is Professor and Chair of the Department of Psychology in Tougaloo College, Jackson, Mississippi. Dr. Khan received her Doctorate in Social Psychology from the University of Manitoba, Winnipeg, Canada in 1997. Her academic career spans twenty-three years of university teaching in different parts of the world, including at Tougaloo College (United States), University of Manitoba, University of Brandon, (Canada), University of Dhaka, North South University, Independent University of Bangladesh and East-West University (Bangladesh). In the Spring of 2007 she received the Tougaloo College "Distinguished Professor Award," and in Spring, 2006 she received the Tougaloo College "National Alumni Association Teaching Award." In the last five years she has conducted cross-cultural research with Bangladeshi



college students as well as with African American college students on parental acceptance and rejection, intimate adult relationships, corporal punishment, and psychological well-being. Additionally, she has done NIH funded evaluative research on "Student achievement and its relationship with perceived parental and teacher acceptance/rejection in the Mississippi Delta". Since the summer of 2005 she has regularly taught in Bangladesh as a Visiting Professor. In 2008-2009 she served as ISIPAR's Regional Representative for North America.

CANDIDATES FOR REGIONAL REPRESENTATIVE



Central & South Africa Almon Shumba, Ph.D., is Associate Professor in the School of Post Graduate Studies at the University of Fort Hare, Main Campus, South Africa. Dr. Shumba received his Doctorate in Education from the University of the Western Cape, South Africa in 2001. Dr. Shumba also holds the following qualifications: M.Ed. (Educational Psychology) & Dip. Ed. (University of Zimbabwe), and a B.Sc. Ed. (University of Sierra Leone). Dr. Shumba is an Educational Psychologist by profession. His Academic career spans twelve years teaching at Morgenster Teachers' College in Zimbabwe and thirteen years of university teaching in different parts of the Southern Africa Development Community (SADC) including Bindura University of Science Education (Zimbabwe), University of Botswana (Botswana), University of Limpopo (South Africa), University of the Western Cape (South Africa) and University of KwaZulu-Natal (South Africa). He is currently the Central and Southern Africa Representative of the International Society for Interpersonal Acceptance and Rejection. He is the author of the article entitled: Emotional Abuse in the Classroom: A Cultural Dilemma? *Journal of Emotional Abuse*, 2004, 4 (3), 139-149. Dr. Shumba has published a book with colleagues; 6 book chapters and more than 40 articles in accredited Journals. Dr. Shumba is a member of several international associations including the International Society for the Prevention of Child Abuse and Neglect (ISPCAN), the International Association for Cognitive Education in Southern Africa (IACESA), the International Association for Cognitive Education and Psychology (IACEP), the International Association for the Treatment of Sexual Offenders (IATSO), the Southern African Society for Education, and the International Society for Interpersonal Acceptance and Rejection.



East Asia Yun-Joo Chyung, Ph.D., is Assistant Professor in the Department of Consumer and Child Studies at the University of Incheon, Incheon, Korea. Dr. Chyung received her undergraduate and Master's degrees from Seoul National University, Korea. She received her Doctorate in Human Development and Family Studies from the Pennsylvania State University, University Park, Pennsylvania, in the USA. Her research

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CANDIDATES FOR REGIONAL REPRESENTATIVE

interests include parental influences on children's and adolescents' psychological adjustment, as well as on the influence of parents' own childhood experiences on their parenting behaviors. She has contributed to several books on education and care in daycare service for young children.



Europe Tiia Tulviste, Ph.D., is Professor of Developmental Psychology at the University of Tartu. Her main research interest is family and peer socialization in a comparative perspective. She is leading a cross-cultural research project dealing with family and peer interactions in Estonia, Germany, and Sweden. She is serving as ISIPAR's Interim-President Elect.



North America William Divale, Ph.D., received his Doctorate from SUNY Buffalo in 1974. He is now professor of Anthropology at York College and the CUNY Online Baccalaureate Program. He is also the current President of the Society for Cross-Cultural Research. Formerly, he was publisher of the journal *World Cultures*,

and has held several NIH grants. His previous cross-cultural survey research has been on warfare, population control, and matrilineal residence. He and his students have conducted research on parental acceptance-rejection for the past 15 years in countries such as Finland, Romania, Colombia, Spain, and currently in Moldova among both the mentally ill and the general population.



South America Karen Ripoll-Núñez, Ph.D., is Assistant Professor at the University of the Andes, Bogota, Colombia, South America. She received her Doctorate at the University of Connecticut in Human Development and Family Studies. She has co-authored articles and book chapters on interpersonal relationships from an acceptance-rejection perspective. Her research interests include intimate adult relationships and corporal punishment in cross-cultural perspective.



South Asia Mah Nazir Riaz, Ph.D., is Professor of Psychology and Dean of Social Sciences, Frontier Women University Peshawar, Pakistan. Dr. Riaz received her Doctorate in Psychometrics from University of Peshawar, NWFP, Pakistan (1979). Her academic career spans 40 years of University teaching. Among her many achievements

are: University Gold Medal (1966) and President of Pakistan's Award (1966), Professor of Psychology for her outstanding academic achievements (2003), Star Women International Award (1996), Distinguished Professor Award for meritorious

services from Ministry of Education Govt. of NWFP (2003), and President of Pakistan's Award "Izaz-e-Kamal" (Gold Medal & cash Prize) for her lifetime achievements. She was nominated as Eminent Educationist and Researcher by Higher Education Commission, Islamabad (2006). She has published more than 60 articles in national and international journals, is author of three textbooks, and has contributed chapters to edited books published in Pakistan and the USA. Dr. Riaz has conducted several studies on parental acceptance-rejection. Currently she is working as a team member of the International Father Acceptance-Rejection Project. She translated the Parental Acceptance-Rejection Questionnaire in Urdu (2001) and determined the psychometric properties of the scales for Pakistani samples. Recently, she has updated Urdu translation of all the PARQ scales (2008).

IMPORTANT INFORMATION ON VOTING PROCEDURES

Please review the entire slate of candidates. Voting will be done electronically, via the internet, using Ballotbin.com, a secure, third-party administrator where voting will be anonymous. Soon, paid-up members will receive an email message from Ballotbin.com. **If your email system filters for "SPAM" or "Junk Mail", please review your messages carefully so that messages from Ballotbin.com are not automatically deleted.** The first message from Ballotbin.com will contain a link directing you to the on-line ISIPAR ballot. Once you have voted, Ballotbin.com will reply letting you know that your vote has been received. You will have two weeks to cast your vote after the ballot has been sent to you. Results will be published in the May 2010 issue of *Interpersonal Acceptance*. For questions related to the International Society for Interpersonal Acceptance and Rejection 2010 Election or voting procedures, please contact Ronald P. Rohner, at rohner.isipar@gmail.com.

FATOS ERKMAN TO SERVE 2ND TERM AS ISIPAR PRESIDENT

You may recall the announcement published in the September 2009 issue of *Interpersonal Acceptance*, where it was announced that Rob Veneziano resigned as President-Elect of the Society. As such, Tiia Tulviste graciously agreed to serve as Interim President-Elect until next summer's 3rd International Congress in Padua, Italy. In December 2009, the Executive Council approved a plan to have Fatos Erkman remain in the office of President for another two years. Likewise, Ronald Rohner will also continue for another two years as Past-President. Soon, Abdul Khaleque will stand for election as President-Elect and Shaila Khan will stand for Secretary-Treasurer. With that will come a full complement of Officers for the next biennium, as required by ISIPAR's Constitution and Bylaws.

Call for Submissions

3rd International Congress on Interpersonal Acceptance and Rejection

Padua, Italy



Photograph by Marco Ius

July 28-31, 2010

<http://isipar2010.psy.unipd.it>

The official language of the conference is English.

Final abstract submission until: February 22, 2010

Final responses sent: March 15, 2010

Early registration begins: April 30, 2010

Abstracts are submitted as attachments to Ronald P. Rohner at: rohner.isipar@gmail.com

Chairperson, Local Arrangements Committee, Anna Laura Comunian, annalaura.comunian@unipd.it

UPCOMING CONFERENCES



Albuquerque, New Mexico

Society for Cross-Cultural Research

The annual conference will be held

February 17-20, 2010 in Albuquerque, New Mexico, USA.

www.sccr.org/



Melbourne, Australia

International Association for Cross-Cultural Psychology (IACCP) The Congress will be held July 7-10, 2010 at the University of Melbourne, Australia. www.iaccp2010.com/



Lusaka, Zambia

International Society for the Study of Behavioural Development (ISSBD) The

21st Biennial Meeting will be held July 18-22, 2010 in Lusaka, Zambia, Africa. www.issbd2010.com/



Padua, Italy

International Council of Psychologists

The Regional Meeting will be held July 26-27, 2010, immediately preceding

the 3rd ICIAR (see below), in Padua, Italy. For more

information on ICP visit the website <http://web.mac.com/rvelayo/icpweb/convention.html>



Padua, Italy

Third International Congress on Interpersonal Acceptance and Rejection will be held July 28-31, 2010 in Padua, Italy (approximately 30 kilometers from Venice) immediately following the ICP meeting (see above). For information visit <http://isipar2010.psy.unipd.it>.



India

Fourth International Congress on Interpersonal Acceptance and Rejection

The 4th International Congress on Acceptance and Rejection in 2012 will be held in India. The specific location and dates will be announced at a later time. Parminder Parmar (prp104@psu.edu), ISIPAR's Secretary-Treasurer, will be Chairperson of the Local Arrangements Committee.



University of Connecticut

Rohner Center Awards for Distinguished Contributions to Theory, Research, and Practice on Interpersonal Acceptance and Rejection

Two University of Connecticut Rohner Center Awards of \$1,000 each are expected to be given at the next biennial meeting of the *International Society for Interpersonal Acceptance and Rejection* (ISIPAR). Awards are expected to be given for the *Outstanding Paper of the Biennium* and for the *Outstanding Paper by an Early Career Professional*. These cash awards are intended to both acknowledge outstanding contributions to the field of interpersonal acceptance-rejection and to help cover expenses associated with attending and giving an Awards Address at the international meeting. Eligibility, evaluation criteria, submission process and deadline information, are available online at

http://isipar.org/Rohner_Center_Awards.html

WISDOM QUOTES

Quotations to inspire and challenge

<http://www.wisdomquotes.com>

We don't accomplish anything in this world alone ... and whatever happens is the result of the whole tapestry of one's life and all the weavings of individual threads from one to another that creates something.

-Sandra Day O'Connor

Deadline for submission of material for publication in the May 2010 issue of *Interpersonal Acceptance* is April 4, 2010. Please direct correspondence to Ron Rohner, Editor rohner@uconn.edu

Editor: Ronald P. Rohner

Editorial Assistant: Lori Kalinowski