

The Influence of Masculine Norms and Mental Health on Health Literacy Among Men: Evidence From the Ten to Men Study

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Abstract

Background: Adherence to masculine norms, such as self-reliance, has been thought to predict lower health literacy. Additionally, males with poor mental health may have low health literacy. Using two waves of the Ten to Men cohort, the current study examined whether masculinity and depressive symptomology explained three aspects of health literacy among men.

Methods: Three subscales of the Health Literacy Questionnaire were used as the outcomes: Ability to find good health information; Ability to actively engage with healthcare providers, and Feeling understood and supported by healthcare providers. Exposures were masculine norms, measured by the Conformity to Masculine Norms Inventory (CMNI-22), and depressive symptoms, measured by the Patient Health Questionnaire (PHQ). We controlled for confounders of the relationship between exposure and outcome. Ordinary least squares regression was used to assess the CMNI and depressive symptoms (measured in Wave 1) on health literacy (measured in Wave 2).

Results: Across all three health literacy scales, increased global conformity to masculine norms was associated with a decrease in health literacy. Moderate-to-severe depressive symptoms were likewise associated with a decrease in health literacy on all three scales, with the effects particularly strong for “Ability to engage with healthcare providers” (coef. -1.54 , 95% CI $[-1.84, -1.24]$, p value $< .001$).

Conclusions: The results of this article highlight that both conformity to masculine norms and depressive symptoms may be predictors of health literacy among men. The results of this study suggest the need for health literacy media campaigns that address the complexities of gendered help-seeking behaviors.

Trial registration: Not applicable.

Keywords

health literacy, masculinity, depressive symptoms, health services, males

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Males and Engagement in Health Care in the Context of Mental Health and Suicide

As in many other areas of the world, Australian males are at a greater risk of dying from suicide than females (World Health Organization, 2014). Studies also suggest that they are less likely to seek treatment from a mental health professional (Galdas, Cheater, & Marshall, 2005; Rasmussen, Hjelmeland, & Dieserud, 2018; Wang et al., 2005). When men do seek treatment, researchers argue that this is often only at the behest of others and in the context of severe mental health issues (Seidler, Rice, River, Oliffe, & Dhillon, 2017). Alternatively, treatment

may sometimes become involuntary at the point of mental health crisis, rather than something that men actively seek out themselves (Seidler et al., 2017). This may be explained by “help negation,” which describes an

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inverse relationship between self-reported symptoms of psychological distress and help-seeking intentions occurring in the context of refusal or avoidance of help (Wilson & Deane, 2010). Hence, as men become more distressed, they may be less and less likely to seek help from a mental health professional.

A range of reasons have been presented to explain this behavioral practice, observed among men, of avoiding treatment when experiencing mental health problems or suicidality (e.g., Rasmussen et al., 2018; River, 2016; Seidler et al., 2017; Wenger, 2011). Some research has focused on masculinity as a key driver of health service use (Addis & Mahalik, 2003; Galdas et al., 2005). Other studies have focused on factors within the health-care system, including the possibility that health-care providers may frame emotional distress and suicide differently from the males who suffer from these problems (River, 2016; Seidler et al., 2017). Hence, there may be a disconnect in the communication between health professionals and men with mental health problems. Related studies have also suggested that males may feel considerable shame in seeking help for mental health problems (McKenzie, Collings, Jenkin, & River, 2018) and this shame may prohibit treatment use. The resulting lack of engagement with health-care services and shame may also be related to poorer confidence in the ability to effectively communicate with health-care providers (i.e., aspects of health literacy, defined in the following text). At the same time, qualitative research suggests that men make judgments about treatment in response to how much their health conditions are perceived to be impacting their ability to perform everyday tasks, as well as whether they have been ill previously and how severe their health conditions are (Smith, Braunack-Mayer, Wittert, & Warin, 2008). This highlights the dynamic and two-way relationship between an individual and the health system.

Health Literacy and Masculinity

One important, yet underresearched area has been the intersection between health literacy and masculinity among men. Health literacy refers to the cognitive and social skills that determine the motivation and ability of individuals to gain access to, understand, and use information in ways which promote and maintain good health (Nutbeam, 1998), and has been found to be an important predictor of health service use (Berkman, Sheridan, Donahue, Halpern, & Crotty, 2011). There are different domains of health literacy. For example, functional (e.g., education based on the communication of factual information on health risks and on how to use the health system), interactive (e.g., improving personal capacity to act independently on knowledge), and critical health literacy (e.g., cognitive and skills development outcomes that are oriented toward supporting

effective social and political action as well as individual action; Nutbeam, 2000). Related to this last domain, communicative health literacy consists of higher level communicative and social skills required to extract and discuss information with others. Patients with high skills are characterized by the self-confidence to act independently on advice and to interact successfully with the health-care system and providers (Nutbeam, 2000). Recently, there has also been a recognition of environmental contributions to health literacy, which include aspects of health system infrastructure, policies, processes, materials, people, and relationships (Australian Commission on Safety and Quality in Health Care, 2014).

Over 10 years ago, researchers drew attention to the need for a greater understanding about how masculinity influences health literacy (Peerson & Saunders, 2009). That article highlighted the lack of attention to how gender (and specifically masculinity) influences health literacy and argued for a need for more research on this topic. However, it is our understanding that there has been limited quantitative research on this topic since this time. Most studies in the area have focused on binary differences between men's and women's use of services, rather than masculinity itself. The construct of masculinity stems from the gendered norms, rules, and standards that guide and constrain masculine (and feminine) behaviors (Mahalik et al., 2003). Thus, conformity to masculine norms is defined as meeting societal expectations of what constitutes masculinity in one's public or private life (Mahalik et al., 2003). Some masculine norms—such as self-reliance—have previously been found to be related to poorer mental health and higher levels of suicide ideation (Currier, Spittal, Patton, & Pirkis, 2016; Milner, Kavanagh, King, & Currier, 2018; Pirkis, Spittal, Keogh, Mousaferiadis, & Currier, 2017), as well as lower use of mental health services (Milner, King, Scovelle, Currier, & Spittal, 2018).

How Could Masculine Norms and Mental Health Influence Health Literacy?

As we have noted earlier, previous research has demonstrated a relationship between masculine norms and mental health service use (Milner, King, et al., 2018). There has also been a demonstrated relationship between men who suffer from a mental health problem and lack of engagement in the health-care system (Seidler et al., 2017). There has been a lack of research on the relationship between masculine norms, mental health, and health literacy. We hypothesize that some masculine norms (particularly characteristics such as self-reliance) may be incompatible with communicative and interactive health literacy. Hence, males who endorse more traditional norms (such as self-reliance and importance of emotional

control) may be less willing to discuss their health concerns. In relation to mental health, it may be the case that men with mental health problems experience considerable shame and stigma (McKenzie et al., 2018) and thus feel like they are not able to openly discuss their problems with health-care providers. Understanding predictors of health literacy is important given that this is a predictor of poorer health outcomes (Berkman et al., 2011).

The aims of this article are twofold. First, we seek to understand the role of male gender norms on three central health literacy components: reported ability to find good health information; ability to actively engage with health-care providers; and feeling understood and supported by health-care providers. Second, we seek to assess whether men who have symptoms of depression have different health literacy scores than those men who have no symptomatology of depression. Based on the idea of help negation, we hypothesize that those men who have moderate or higher symptoms of depression will have lower health literacy. We also hypothesize that males who have greater conformity to traditional masculine norms will have lower health literacy.

Methods

Data Source

We used data from Wave 1 (baseline) and Wave 2 (2 years after baseline on average) of the Australian Longitudinal Study on Male Health (Ten to Men). The current study was restricted to men aged between 18 and 55 years. Ten to Men is a national longitudinal study of boys and men aged 10 to 55 years at Wave 1. The study collects data on a range of life domains, including demographic and socioeconomic characteristics, physical and mental health and well-being, health behaviors, and use and knowledge of health services. Sampling, recruitment, and data collection methods are described in detail elsewhere (Pirkis et al., 2016). Briefly, 104,884 households were contacted by field-workers at Wave 1. Successful contact was made with 81,400 households (78%), of which 33,724 (42%) were confirmed to be potentially eligible for the study. Within these households, 45,510 eligible males were invited to participate, of whom 16,021 returned a Wave 1 survey and were included in the study (a response rate of 35%; Currier, Pirkis, et al., 2016). Wave 1 was conducted between October 2013 and July 2014. Wave 2 was conducted between November 2015 and May 2016 with 76% of the original cohort participating. Ten to Men received approval from the relevant human research ethics committee and conformed to the principles embodied in the Declaration of Helsinki. All participants provided written consent. The flow of participants in the sample can be seen in Supplementary

Figure S1. There are slightly different sample sizes in each of the three health literacy outcomes due to incomplete responses to all of the health literacy questions. As such, some men may have provided enough information to calculate one or two of the health literacy outcomes, but not all three.

Outcome Variable

Three scales of the Health Literacy Questionnaire (HLQ; Osborne, Batterham, Elsworth, Hawkins, & Buchbinder, 2013) were included in the Ten to Men cohort in Wave 2. These scales are (a) Ability to find good health information (5 items, average interitem covariance: 0.44, Cronbach's α : 0.94); (b) Ability to actively engage with healthcare providers (5 items, average interitem covariance: 0.53, Cronbach's α : 0.95); and (c) Feeling understood and supported by healthcare providers (4 items, average interitem covariance: 0.52, Cronbach's α : 0.91). The three scales concern communicative and interactive health literacy, which reflects the ability to extract information and derive meaning from different forms of health-related communication and to apply new information to changing circumstances. More information on the development of the HLQ can be seen in Osborne et al. (Osborne et al., 2013). Higher scores on each scale represent greater health literacy.

Exposures

The Conformity to Masculine Norms Inventory. We used Wave 1 scores of the Conformity to Masculine Norms Inventory (CMNI-22) to assess conformity to masculine norms. This represents an abbreviated version of the original 94-item CMNI that was designed to measure cognitive, behavioral, and affective conformity to dominant masculine ideologies (Mahalik et al., 2003; Rochlen, McKelley, Suizzo, & Scaringi, 2008). The CMNI-22 uses the two highest loading items for each of the 11 factors from the original CMNI study and has a correlation of 0.92 with the full version of the questionnaire (Mahalik et al., 2003; Rochlen et al., 2008), which had scale reliability scores ranging from 0.44 (pursuit of status) to 0.81 (playboy). The inventory asks respondents to think about their own actions, feelings, and beliefs and indicate how much they personally agree or disagree with each of 22 statements, which are scored from 0 (*strongly disagree*) to 3 (*strongly agree*). The 11 factors form subscales of the CMNI and include (a) importance of social status (pursuit of status); (b) importance of being dominant; (c) importance of emotional control; (d) salience of heterosexual presentation; (e) salience of "playboy" status; (f) salience of power over women; (g) primacy of work; (h) endorsement of risk taking; (i) importance of self-reliance; (j) endorsement of

violence as a solution to problems; and (k) importance of winning. We used the CMNI-22 as a continuous variable, with low scores indicating low conformity and higher scores increasing conformity.

Depressive symptoms. The Patient Health Questionnaire (PHQ) is a self-administered version of the PRIME-MD diagnostic instrument for common mental disorders, which we used in Wave 1 of the current study (9 items, average interitem covariance: 0.70, Cronbach's α : 0.95). The PHQ-9 is a depression module, which scores each of the nine criteria of the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (American Psychiatric Association, 2000) as 0 (*not at all*) to 3 (*nearly every day*; Kroenke, Spitzer, & Williams, 2001). It has been validated for both major and subthreshold depressive disorders in general (Martin, Rief, Klaiberg, & Braehler, 2006) and clinical populations (Manea, Gilbody, & McMillan, 2012). The PHQ-9 has been found to have good sensitivity and specificity for detecting major depressive disorders, with evidence suggesting the ideal cutoff for clinically significant symptoms is a score ≥ 10 (Kroenke, Spitzer, Williams, & Löwe, 2010). Therefore, we created a binary variable with scores 9 and below indicating no or mild levels of depressive symptomology and scores 10 and above indicating moderate or severe depressive disorder.

Confounders

We considered variables that could be considered to be prior common causes of both health literacy and our exposures of interest: the CMNI and the PHQ-9. Confounders were measured in Wave 1 and included age (18–24 years, 25–34 years, 35–44 years, 45–55 years), education (less than Year 12 [we note that Year 12 is the highest year of secondary schooling in Australia], more than Year 12), relationship status (never married; widowed, divorced, separated but not divorced; married/de facto), country of birth (Australia or another), area of residence (metropolitan, inner regional, outer regional), and combined household income scored from 1 representing \$3,840 or more per week (\$200,000 or more per year) to 12 representing \$1–\$189 per week (\$1–\$9,999 per year). An additional category 0 represented zero or negative income. All confounders were analyzed as categorical variables, apart from income, which was assessed as a continuous variable.

Analysis

Ordinary least squares regression was used to assess health literacy (measured in Wave 2) as an outcome of the CMNI and depressive symptoms, which have both been

measured in Wave 1. Unadjusted models included exposures only (no confounders). We then conducted adjusted models including all confounders. As a sensitivity analysis, we assessed health literacy in relation to the CMNI total score and depressive symptoms as a continuous variable to understand if results were sensitive to binary cutoff points.

Results

A description of the sample in each analytic group can be seen in Table 1, which represented the three different outcomes under study. The mean on "Ability to find good health information" was 14.95, the mean score on "Ability to actively engage" was 14.70, and the mean score on "Feeling understood by healthcare providers" was 6.89. The three analytic groups reported the same mean score on the CMNI (27.17) and nearly 89% of men in all three groups reported no or low depressive symptoms. Across the three samples approximately 90% of the men were employed, 63% had completed Year 12, and nearly three quarters were married. Men in the sample were more likely to be older, nearly 80% were born in Australia, and approximately 60% lived in metro areas.

Table 2 shows the relationship between the PHQ-9 and the three literacy scales. Men with higher scores on the PHQ-9 (those with depressive symptoms) had lower levels of health literacy across all three subscales of the HLQ. There was an inverse relationship between the CMNI and health literacy. Higher scores on the CMNI (i.e., greater endorsement of masculine norms) were associated with lower health literacy.

Results for the effect of the PHQ-9 and baseline CMNI scores on health literacy can be seen in Table 3. Across all three health literacy scales, increased global conformity to masculine norms was associated with a decrease in health literacy. Moderate-to-severe depressive symptoms were likewise associated with a decrease in health literacy on all three scales, with the effects particularly strong for "Ability to engage with healthcare providers" (coef. -1.54 , 95% CI $[-1.84, -1.24]$, p value $< .001$).

Results of the sensitivity analysis treating PHQ-9 score as a continuous variable were similar to those reported in Table 3 (Supplementary Table S1).

Discussion

This study has shown that males who endorse higher overall scores on the CMNI were more likely to report lower levels of health literacy. Further, those who displayed moderate-to-severe scores of depressive symptomology reported lower levels of health literacy. This is problematic, given low levels of health literacy have been associated with a range of negative outcomes, including

Table 1. Description of the Sample.

	Model 1: Ability to find good health information		Model 2: Ability to actively engage with healthcare providers		Model 3: Feeling understood and supported by healthcare providers	
	<i>n</i> = 8,334		<i>n</i> = 8,329		<i>n</i> = 8,362	
	Mean	SD	Mean	SD	Mean	SD
Health Literacy Scale						
Ability to find information	14.95	3.35				
Ability to engage			14.70	3.65		
Feeling understood					6.89	2.99
CMNI total score	27.17	5.46	27.17	5.46	27.17	5.46
	%	Freq	%	Freq	%	Freq
PHQ-9						
Low	7,399	88.78	7,396	88.80	7,422	88.76
High	935	11.22	933	11.20	940	11.24
Employment status						
Employed	7,489	89.86	7,489	89.91	7,511	89.82
Unemployment	436	5.23	435	5.22	439	5.25
Not in the labor force	409	4.91	405	4.86	412	4.93
Education						
Under Year 12	3,084	37.01	3,081	36.99	3,096	37.02
Over Year 12	5,250	62.99	5,248	63.01	5,266	62.98
Age group						
18–24 years	718	8.62	717	8.61	719	8.60
25–34 years	1,779	21.35	1,778	21.35	1,789	21.39
35–44 years	2,705	32.46	2,706	32.49	2,714	32.46
45–55 years	3,132	37.58	3,128	37.56	3,140	37.55
Relationship status						
Never married	1,561	18.73	1,562	18.75	1,567	18.74
Divorced/separated	531	6.37	530	6.36	533	6.37
Married	6,242	74.90	6,237	74.88	6,262	74.89
Income						
\$3,840 or more per week	38	0.46	38	0.46	38	0.45
\$2,880–\$3,839 per	146	1.75	143	1.72	145	1.73
\$2,400–\$2,879 per week	219	2.63	220	2.64	223	2.67
\$1,920–\$2,399 per week	294	3.53	294	3.53	297	3.55
\$1,530–\$1,919 per week	491	5.89	493	5.92	493	5.90
\$1,150–\$1,529 per week	537	6.44	537	6.45	543	6.49
\$960–\$1,149 per week	1,086	13.03	1,085	13.03	1,085	12.98
\$770–\$959 per week	1,199	14.39	1,199	14.40	1,207	14.43
\$580–\$769 per week	1,321	15.85	1,320	15.85	1,323	15.82
\$380–\$579 per week	1,015	12.18	1,015	12.19	1,017	12.16
\$190–\$379 per week	1,072	12.86	1,071	12.86	1,077	12.88
\$1–\$189 per week	885	10.62	883	10.60	883	10.56
Negative income or none	31	0.37	31	0.37	31	0.37
Country of birth						
Australia	6,535	78.41	6,535	78.46	6,552	78.35
Other country	1,799	21.59	1,794	21.54	1,810	21.65
Region of residence						
Metro	4,893	58.71	4,889	58.70	4,906	58.67
Inner regional	1,894	22.73	1,891	22.70	1,897	22.69
Outer regional	1,547	18.56	1,549	18.60	1,559	18.64

Note. CMNI = Conformity to Masculine Norms Inventory; PHQ = Patient Health Questionnaire.

Table 2. Mean Score on Three Health Literacy Scales by PHQ-9 Classification.

	Mean	95% CI
PHQ-9 low scores		
Ability to find information	15.12	[15.05, 15.19]
Ability to engage	14.90	[14.82, 14.98]
Feeling understood	6.93	[6.86, 7.00]
PHQ-9 moderate-to-high scores		
Ability to find information	13.56	[13.31, 13.82]
Ability to engage	13.14	[12.86, 13.42]
Feeling understood	6.56	[6.35, 6.76]

Note. PHQ = Patient Health Questionnaire.

death and hospitalization due to cardiovascular disease (Fabbri et al., 2018; Peterson et al., 2009), decreased use of preventative health services, and poorer self-rated health (Berkman et al., 2011).

Previous studies suggest that endorsement of some aspects of masculinity—particularly “self-reliance”—are associated with both poorer mental health (Milner, Kavanagh, et al., 2018) and suicidal thinking (Pirkis et al., 2017), as well as a lack of engagement in health promotion activities (Gordon et al., 2013; James, Micól, & Gordon, 2007). In the context of the current study, endorsement of masculine norms appears to be incompatible with some aspects of health literacy such as the ability to find good information on health. At the same time, men who endorse higher scores on the CMNI were more likely to report that they are unable to engage with health-care providers and feel that they are not able to be

understood by health-care providers. There has been some research to suggest that, for many men, health systems are not well designed to suit their needs (Seidler et al., 2017). This may be because health professionals, perhaps unconsciously, play into masculine norms such as stoicism that reinforce harmful behaviors and thereby alienate men who appear to deviate from these norms by seeking help (Seidler et al., 2017). At the same time, men who display increased conformity to masculine norms may hold the perspective that to seek help is a form of weakness that undermines societal expectations around male strength, independence, and self-reliance (O'Brien, Hunt, & Hart, 2005).

Our results also suggest that men with higher levels of depressive symptoms had lower levels of health literacy. There are several potential reasons for this. First, these men may be those who have traditionally avoided health services and had poor health literacy prior to the first onset of depressive symptoms. Second, it is possible that earlier negative experiences of the health system have contributed to poorer levels of health literacy. At this stage, we are unable to state whether either or both of these scenarios is true because of a lack of longitudinal data. The ability to assess the effect of the onset of depressive symptoms on later health literacy and health services may be possible in future waves of Ten to Men. This will also enable us to better assess the temporal relationship between experiences of mental health problems, health service use, and changes in health literacy. As we have noted, men are more likely than women to avoid treatment until their mental health is at a critical point (O'Brien

Table 3. Adjusted Linear Regression Analysis of the Association Between the CMNI Total Score, PHQ-9, and Health Literacy Scales.

Model 1: Ability to find good health information (n = 8,334)				
	Coefficient	Lower CI	Upper CI	p value
CMNI	-0.06	-0.08	-0.05	<.001
PHQ (low versus moderate/high)	-1.22	-1.49	-0.96	<.001
Constant	15.29	14.72	15.86	<.001
Model 2: Ability to actively engage with healthcare providers (n = 8,329)				
CMNI	-0.08	-0.09	-0.06	<.001
PHQ (low versus moderate/high)	-1.54	-1.84	-1.24	<.001
Constant	15.58	14.95	16.21	<.001
Model 3: Feeling understood and supported by healthcare providers (n = 8,362)				
CMNI	-0.06	-0.07	-0.04	<.001
PHQ (low versus moderate/high)	-0.23	-0.45	-0.01	.041
Constant	7.09	6.59	7.58	<.001

Note. Adjusted for employment status, education, age group, relationship status, income, country of birth, and region of residence. CMNI = Conformity to Masculine Norms Inventory; PHQ = Patient Health Questionnaire.

et al., 2005; River, 2016; Seidler et al., 2017). The small amount of literature on help negotiation (Wilson & Deane, 2010) has not yet taken a gender-specific lens, but is compatible with the premise that certain aspects of masculinity are not concordant with the idea of seeking and using health services for mental health problems.

An important limitation of the current article is that the health literacy scale was not specific to mental health, but rather to health service use more generally. Related to this, we were only able to use three components of the HLQ; the full version of the scale assesses nine separate components. Furthermore, these items were only measured in Wave 2; hence, it is difficult to assess how health literacy may have changed over time or in response to other personal or health-related factors. We also acknowledge that both health literacy and masculinity are complex constructs, which are also likely to vary by social class (Cleary, 2012), age (Rice, Fallon, & Bambling, 2011), ethnicity, and other differences (Peerson & Saunders, 2009). We controlled for many of these variables in our analyses but recognize that there is need for specific exploration of how these demographic factors intersect with health literacy, masculinity, and mental health. The measure of health literacy we have used in the article does not recognize environmental health literacy and therefore places most emphasis on an individual's ability to engage in the health system. Other limitations of this article relate to generalizability, in that the Ten to Men sample is older, more likely to be Australian born, and more likely to live in regional areas (Currier, Pirkis, et al., 2016) than the Australian population. Another limitation of this article was retention into the study from Wave 1 to 2, which while similar to other cohort studies (Bauman et al., 2016; Wilikins, 2017), may have resulted in selection bias. Furthermore, our outcome and exposures were self-reported, resulting in possible dependent misclassification. These noted limitations are offset by the strengths of the article, which include its large sample size, prospective design, and the ability to control for a range of appropriate confounders.

In conclusion, the results of this article highlight that both conformity to masculine norms and depressive symptoms may be predictors of health literacy among men. How these three complex factors interrelate should be the subject of further research. Notwithstanding, these results suggest the need for health literacy campaigns that address the complexities of gendered help-seeking behaviors. For example, developing a suite of campaigns (e.g., print or media campaigns focused on the complex nexus of masculinity and health service engagement; campaigns aimed at educating health professionals regarding the problems some men may experience in reaching out for help) to address the various dimensions of health literacy in relationship to aspects of masculinity. Clinicians need to be aware of how the construction of masculinity

interacts with male-socialized responses about giving and receiving help (Addis & Mahalik, 2003), particularly in terms of how this may influence overall engagement with health professionals. At the same time, there is a need to acknowledge the complexity of masculinity as a concept and as it relates to health literacy. One way of doing this may be to emphasize examples of alternatives to traditional masculine norms and, in doing so, emphasize the multiplicity of masculinity. Research suggests that resistance of dominant forms of masculinity can be critical in forming new ways to engage support in times of need (McKenzie et al., 2018). This necessitates a careful and nuanced approach that reflects alternative and marginalized masculine positions (Smith et al., 2008) as well as dominant positions, as failure to do so risks reifying harmful masculinities (Fleming, Lee, & Dworkin, 2014).

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Ethics

Data were anonymized and available with the permission of the data custodians.

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Supplemental Material

Supplemental material for this article is available online.

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