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Culture, Gender and Health Care Stigma: Practitioners' Response to Facial Masking Experienced by People with Parkinson's Disease

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Abstract

Facial masking in Parkinson's disease is the reduction of automatic and controlled expressive movement of facial musculature, creating an appearance of apathy, social disengagement or compromised cognitive status. Research in western cultures demonstrates that practitioners form negatively biased impressions associated with patient masking. Socio-cultural norms about facial expressivity vary according to culture and gender, yet little research has studied the effect of these factors on practitioners' responses toward patients who vary in facial expressivity. This study evaluated the effect of masking, culture and gender on practitioners' impressions of patient psychological attributes. Practitioners (N=284) in the United States and Taiwan judged 12 Caucasian American and 12 Asian Taiwanese women and men patients in video clips from interviews. Half of each patient group had a moderate degree of facial masking and the other half had near-normal expressivity. Practitioners in both countries judged patients with higher masking to be more depressed and less sociable, less socially supportive, and less cognitively competent than patients with lower masking. Practitioners were more biased by masking when judging the sociability of the American patients, and American practitioners' judgments of patient sociability were more negatively biased in response to masking than were those of Taiwanese practitioners. Practitioners were more biased by masking when judging the cognitive competence and social supportiveness of the Taiwanese patients, and Taiwanese practitioners' judgments of patient cognitive competence were more negatively biased in response to masking than were those of American practitioners. The negative response to higher masking was stronger in practitioner judgments of women than men patients, particularly American patients. The findings suggest local cultural values as well as ethnic and gender stereotypes operate on practitioners' use of facial expressivity in clinical impression formation.

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Keywords

USA; Taiwan; culture; gender; stigma; Parkinson's disease; facial expression; nonverbal communication; health practitioners

Introduction

The global prevalence of Parkinson's disease (PD), one of the most common age-related neurodegenerative disorders, is increasing with the aging of the population (Global Parkinson's Disease Survey Steering Committee, 2002). This progressive disorder is diagnosed at the average age of 60 and is characterized by slowness, stiffness and difficulty in initiating, coordinating and maintaining movement throughout the body. The face can lose expressive speed, elasticity and coordinated expression in the brow, eyes, cheeks, and lips: a condition called *hypomimia* or *facial masking*. The frozen position of pressed or slack lips and an unbroken stare creates the impression, regardless of its accuracy, of an asocial, cold, incompetent or apathetic person who fails to reciprocate others' feelings of warmth, concern, interest or excitement (Brozgold et al., 1998; Smith et al., 1996). The mask interferes with social observers' formation of accurate impressions regardless of whether the observer is a lay person (Borod et al., 1990; Brozgold et al., 1998; Hemmesch et al., 2009) or a health care practitioner (Lyons et al., 2004; Pentland et al., 1988, 1987; Tickle-Degnen & Lyons, 2004). The experience for people with masking has been characterized as an imprisonment of the self by an unresponsive body (Anonymous, 1999). Socially and mentally competent people with masking are confronted with the challenge of clearly presenting a self that overrides observers' automatic and confidently-formed impressions of incompetence (Lyons & Tickle-Degnen, 2003; Pentland, 1991).

Previous research findings have suggested that the mask is stigmatizing, yet these findings are limited by being conducted in western countries with predominantly Caucasian ethnicity. There has been little investigation of the socio-cultural factors underlying this stigmatization and the implications for health care. Our specific purpose was to test the role of universal facial expressiveness norms, local cultural values, and ethnicity and gender stereotypes in the health care context of both western and eastern culture. We studied practitioners' first impressions of patients, a point in time that is critical to the subsequent development and effectiveness of the therapeutic relationship (Martin et al., 2000).

Facial masking and stigma

Kurzban and Leary (2001) theorize that one of the origins of stigmatization lies in the importance of dyadic cooperation for human survival and the predictability of human behavior for this cooperation to occur. When individuals can quickly decipher one another's thoughts and actions, they are able to respond effectively as a unit to the task at hand and to predict social and task outcomes. Decipherability is contingent on visible and dynamic physical displays of emotion, thought and motivation. By reducing physical cues of psychological states and traits, facial masking makes it less possible for observers to form reliable impressions of people with PD. When patients are masked there is a smaller correlation between the patients' tested social attributes and observers' impressions of these attributes than when patients are more facially expressive (Hemmesch et al., 2009).

This indecipherability sets the stage for social response biases and stereotype activation as the social observer attempts to understand an ambiguous situation. In western populations, it has been found that people who are more nonverbally expressive are viewed more favorably than are less expressive individuals (Boone & Buck, 2003). Social observers are likely to perceive expressive individuals as having nothing to hide, of being open and worthy of trust,

and less expressive individuals as being deceptive or untrustworthy. Poor ability to mobilize upper face muscles that produce the eye crinkling of genuine smiling can create a look of deceptive smiling in people with PD even though they are experiencing genuine happiness (Pitcairn et al., 1990). The lack of predictability and the reduced perceived trustworthiness of the facially masked patient in comparison to more expressive patients may contribute to negative response biases among observers (Hemmesch et al., 2009; Pentland et al., 1988, 1987; Pitcairn et al., 1990; Tickle-Degnen & Lyons, 2004).

According to an ecological theory of social perception (McArthur & Baron, 1983; Zebrowitz & Collins, 1997), health care practitioners may automatically over-generalize their everyday social and implicit use of the face into the clinical context (Tickle-Degnen & Lyons, 2004). The practitioner may believe that the patient “is” what is perceived, and although this impression may change over time, it is unlikely to do so as rapidly as when the first impression was formed. A patient with facial masking may enter the health care relationship with, in the words of Goffman (1963), a “spoiled identity” created by a special kind of association between attribute and stereotype (p. 4). The attribute is the muting of facial expressivity and the stereotype is observers’ preconceptions about the meaning of muted expressivity. Practitioners’ impressions of patients can be unreliable indicators of patients’ actual psychological attributes without being stigmatizing, leading to poor diagnostic discriminations (Burn, 2002). However if this unreliability is paired with a belief that inexpressive people have less favorable psychological attributes than expressive people, a systematic stigmatization can occur.

Facial masking and culture

There are commonalities in the social meaning of behavior across cultures. Regardless of culture people believe facial behavior indicates emotion, character, and health (Yu, 2001), and favor pleasant affect over negative affect (DePaulo, 1992). There is also systematic variation in the meaning of social behavior as groups develop specific methods for living within their social environments (Markus & Kitayama, 2010; Zebrowitz & Rhodes, 2002). Yang and Kleinman (2008) and Yang and colleagues (Yang et al., 2007) have observed that individuals are stigmatized when others perceive them as failing to uphold important moral obligations and transactions of everyday social life. The stigmatized lose moral character in the eyes of the public and suffer diminished human value in domains that “matter most” to the local community.

We chose to study Taiwanese and American culture because of differing views of the social self in the world as related to expressive behavioral displays (Markus & Kitayama, 2010). East Asians construe the self as interdependent with others in one’s group and value submission of self in favor of the greater good. Personal development and intellectual achievement is a moral obligation to family and social life (Yang & Kleinman, 2008). A humble muting of personal expressiveness is seen as supportive of harmonious relationships with others and is highly valued within the Confucian tradition (Chang & Holt, 1994). Americans on the other hand construe the self as independent of others and value autonomous action and individuation of self identity. Personal skill at influencing others and drawing positive attention to the self and one’s opinions are valued (Markus & Kitayama, 2010).

A common stereotype is that Asians are less openly expressive than Americans. Consistent with the stereotype, Asians have a stronger normative system of display rules that control facial expressivity in response to emotionally evocative stimuli (Ekman, 1972; Fernandez et al., 2000; Okazaki et al., 2002). Asians, compared to Americans, view themselves and are viewed by others as less extraverted and expressive, especially related to assertiveness, personal agency, and activity (Cheung et al., 2001; Kashima et al., 1995; McCrae et al.,

1998; Williams et al., 1998; Zhang et al., 1999). Vibrant and expressive sociable behavior is favored over quiet retiring behavior in American culture (Williams et al., 1998; Zillig et al., 2002). The implications, tested for the first time in this study, are that facial masking would be more deviant for Americans on attributes related to sociability, whereas more deviant for Taiwanese on attributes related to social harmony or intelligence.

Facial masking and gender

Universally held stereotypes and norms expect women to be more expressive emotionally than men. In fact women as compared to men are more emotionally expressive generally; their behavior is more responsive to the emotions and behavior of others, and their social interactions in close relationships are characterized by more emotionally supportive behavior (Eagly, 2009; Fischer & Manstead, 2000; Hall, 2006). The implications are that facial masking would be more deviant for women than men and put them more at risk of stigmatization. Consistent with this implication, Hemmesch et al. (2009) found that older adult peers judged the social supportiveness and interpersonal appeal of Americans with PD more favorably with lower than higher masking, and this effect was larger for women than men with PD. The present study extends these findings by investigating cross-cultural judgments of men and women with PD by health care practitioners.

Although women have been found to be more expressive than men across cultures, gender differences are larger in western cultures (Fischer & Manstead, 2000; LaFrance et al., 2003). Women in these cultures may be socialized to be more responsible for mediating interpersonal cohesion through their expressive behavior than women in communally-oriented cultures where family and community infrastructure and values support this cohesion. The variation of gender differences in expressivity across cultures suggests that gender effects of masking on judgments would be moderated by patient culture, with the most negative effects for American women relative to American men.

Specific Aims

This study was designed to respond to a gap in research on socio-cultural and multi-dimensional origins of global health care stigma (Keusch et al., 2006; Stuber et al., 2008). It aimed to document the degree to which there was a universal main effect of patient masking on practitioner judgments, and the degree to which practitioner culture (American v Taiwanese), patient culture (Caucasian American v Asian Taiwanese) and patient gender moderated the effect of patient masking on judgments. It was hypothesized that there would be a main effect of masking on practitioner judgments, such that practitioners would rate facially masked patients during videotaped interviews less favorably-- more depressed, less sociable, less socially supportive, and less cognitively competent-- than those showing normal to near-normal expressivity. We evaluated the degree to which practitioners' judgments were more negatively biased in response to masking when evaluating patient attributes that were highly valued in the practitioners' own culture (sociability for American practitioners, and social supportiveness or cognitive competence for Taiwanese practitioners), or those stereotypically related to patient ethnicity and culture (sociability in Caucasian American patients, and social supportiveness or cognitive competence in Asian Taiwanese patients). Finally we predicted that masking would yield less favorable judgments of the socio-emotional attributes (depression, sociability and social supportiveness) of women patients than men patients, and that this gender difference would be larger for practitioner judgments of American patients compared to Taiwanese patients.

Method

Study design

A balanced cross-cultural impression formation experimental design involved practitioners and patients in the United States and Taiwan (Elfenbein et al., 2002). American ($n = 156$) and Taiwanese practitioners ($n = 128$) viewed 80-sec excerpts from standardized, videotaped interviews of 24 patients, and rated each patient's psychological attributes. Half of the patients had normal to near-normal facial expressivity (lower masking) and half a moderate degree of masking (higher masking), with equal numbers of Caucasian American and Asian Taiwanese women and men in each group. Participants provided informed consent through procedures approved by the institutional review boards of Boston University, participating Boston-area hospitals, and National Cheng Kung University Hospital. The study protocol was developed in English, translated into Mandarin Chinese and back-translated into English for cross-cultural consistency. The study was conducted from 2003 through 2008.

Practitioner participants

A total of 284 practitioners ($n = 159$ working clinicians, $n = 125$ students in training) participated at their clinical or educational setting in a one-hour session. All clinical settings treated PD and all educational programs taught about PD. Working clinicians compared to students, on the average, were 10 years older in age (clinicians, $M = 31.9$, $SD = 8.26$; students, $M = 22.4$, $SD = 3.01$; $p < .0001$), had 76 months more clinical experience (clinicians, $M = 90.1$, $SD = 91.14$; students, $M = 13.7$, $SD = 20.63$; $p < .0001$), and rated themselves as more experienced in working specifically with PD [2.3 points higher on a five point rating scale from *no experience* (0) to *high level of experience* (5), $p < .0001$]. Practitioners came from the disciplines of physical therapy ($n = 96$), occupational therapy ($n = 66$), nursing ($n = 33$), speech and language pathology ($n = 27$), medicine ($n = 26$) and others (such as psychotherapy, $n = 36$). All but five practitioners had resided in their country for five or more years, indicating enculturation into local norms. Of the 156 Americans, 138 (88%) were women, 132 (85%) were Caucasian, 16 (10%) were of Asian ethnicity, and the remaining eight represented other ethnicities. Of the 128 Taiwanese, 93 (73%) were women, and all practitioners except one of unidentified ethnicity, were of Asian ethnicity.

Target patients

There were 24 target patients, a number that practitioners could judge feasibly in one hour. Equal numbers of Taiwanese and American men and women were selected from 45 community-living patients recruited purposefully for the study design. Americans were recruited through the Center for Neurorehabilitation at Boston University's Sargent College of Health & Rehabilitation Sciences, USA, and Taiwanese were recruited through the Department of Neurology of National Cheng Kung University Hospital in Tainan, Taiwan. Inclusion criteria were diagnosis of PD, 40 or more yrs old, walking without supervision, independent communication, no disfigurement or abnormal choreiform movement in upper body, and 25 or more on the Mini-Mental Status Exam (Folstein et al., 1975). American patients scored ≤ 5 on the Geriatric Depression Scale-Short Form (GDS-SF) and Taiwanese patients scored ≤ 7 on the Taiwanese validated GDS-SF, indicating low probability of depression in their respective cultures (Chiu et al., 1998; Sheikh & Yesavage, 1986).

Target patients were in the earlier stages of PD (Hoehn & Yahr (1967) disease severity scale, $M = 2.1$, $SD = 0.56$, range 1–3), averaged 67.5 yrs old ($SD = 8.12$, range 54–81), averaged 5.7 yrs in duration of the disease ($SD = 3.22$, range <1–11), and reported mild to moderate impact of the disease on their quality of life (Parkinson's Disease Questionnaire-39 summary index (Peto et al., 1998), $M = 18.2$, $SD = 12.23$, range 3.7 – 47.2). At screening patients had been assigned a preliminary score using the Unified Parkinson's Disease Rating

Scale – Facial Expression score (UPDRS-F, Fahn & Elton, 1987), with 0 = normal to 4 = masked or fixed face, lips parted ¼ of inch or more with complete loss of expression. Final masking assessment was completed by five trained researchers using methods validated against the UPDRS-F (Lyons & Tickle-Degnen, 2005). They independently rated each video clip on a 5-point scale (1= low to 5= high duration, intensity or frequency) on five items-- eye and forehead expressivity, blinking, lower face expressivity, open lips when not speaking, and changing emotion in the face-- with adequate effective interrater reliability (ICC range= .78 – .88). The ratings were combined into a masking composite (Cronbach's α = .86) and validated against ratings of active facial expressivity made by an independent set of four trained research assistants ($r = -.92$). Patients were categorized into lower versus higher masking along a median split within each gender by culture group. The average masking composite of lower masked patients ($M = 2.5$, $SD = 0.40$), who had normal to near-normal expressivity, was significantly lower than higher masked patients ($M = 3.5$, $SD = 0.43$, $t(22) = 6.08$, $p < .0001$) who had definite to moderate masking impairment on the UPDRS-F. There were no differences in masking due to gender ($p = .87$), culture ($p = .71$), or the interaction of gender and culture ($p = .71$).

Videotapes of patients—The patients were videotaped while being interviewed in their native language by a graduate research assistant blind to hypotheses. The camera was focused on the face and torso of the sitting patient. Video clips of 80-sec duration were extracted from standardized points when the patient was talking about a satisfying event or activity of the past week, a topic that stimulates expressive behavior in PD (Takahashi et al., 2010). Clips as short as 10 to 30 sec are valid for eliciting first impressions of behavior that predict important social outcomes (Ambady & Rosenthal, 1992; Carney et al., 2007). Patient speech content was electronically filtered from the audio channel of the clips by using a low-pass band at 400 Hz, which preserved vocal prosody (Van Bezooijen & Boves, 1986).

Measures administered to patients—In addition to tests administered at screening, patients were administered tests and self-report scales shown in Table 1 to compare to practitioners' judgments. These measures were derived from research on psychological traits and values in America and Asia (Cheung et al., 1992; Gosling et al., 2003; Williams et al., 1998), formation of stereotypes and trait impressions (Chiu et al., 1997; Fiske et al., 2002; Mignon & Mollaret, 2002), and clinically-relevant competencies in PD (DeGroat et al., 2006; Gladsjo et al., 1999; Martin et al., 2000; Pentland et al., 1987). People with PD have been found to accurately self-report symptoms and traits as determined by correspondence with reports and observations made by family, friends, or trained researchers (Brown et al., 1989; Lyons & Tickle-Degnen, 2005; Mendelsohn et al., 1995; Mikos et al., 2009). There was no main effect of patient masking or interaction effect of gender or culture with masking (all p 's $> .35$) on any patient score. Furthermore, when patient scores were used as control measures against which to assess practitioner judgment bias due to masking (see Supplemental Document, [INSERT LINK TO ONLINE FILE]), findings generally replicated those reported in the Results section, which did not control for patient scores.

Practitioner judgment procedure

Groups of practitioners were randomly assigned to view one of two random video clip orders, and, within each group, practitioners were assigned randomly to one of two 10-item judgment forms that corresponded to patient measures shown in Table 1. One form measured perceived traits related to depression, sociability, social supportiveness, and cognitive competence: "I feel the patient is [trait]". The other form measured perceived preferences for engaging in sociable, socially supportive and cognitively challenging activities: "I think the patient would like [activity]". Principal component analyses and preliminary tests of the hypotheses showed that the trait and activity preference forms

provided parallel assessments of perceived sociability, social supportiveness, and cognitive competence.

Statistical analyses

The practitioner was the unit of analysis. Each practitioner ($N = 284$) received a judgment score for sociability, social supportiveness and cognitive competence from the trait or activity preference form. Only those practitioners completing the trait form ($N = 141$) had a score for judged depression. For each dependent variable, each practitioner received eight scores derived by averaging the judgment scores of the three patients within each masking (lower v higher) by culture (American v Taiwanese) by gender (man v woman) group. Hypotheses were tested using four analyses of variance, one ANOVA for each dependent variable, with three between factors and three repeated measures. The between factors were practitioner culture (American v Taiwanese), practitioner status (clinician v student) and the controlled factor of judgment form (trait v activity preference). The repeated measures were patient masking, culture and gender. Hypothesis tests involved the independent variable of masking, either as a main effect or as an interaction effect. Effect size r 's were calculated to demonstrate the magnitude of support for the hypotheses and interpreted with Cohen's (1988) guidelines for small (.10), medium (.30) and large (.50) effects. For interpretation of the results, the term *masking bias* refers to the difference score created by subtracting the ratings of patients with high masking from the ratings of patients with low masking, and reversing the sign for depression ratings only. A higher bias score indicates less favorable judgments of higher masked patients. Practitioner status (clinician v student) and its interaction with patient masking had little systematic or interpretable effects on practitioner judgments, and therefore, are described no further (see Schwab (2008) for a review of similar findings).

Results

Main effect of masking on practitioner judgments

The findings supported a universal biasing effect of patient masking on practitioner judgments with effects of large magnitude. Means and standard errors of practitioner judgments, averaged across practitioner culture, are shown in Table 2. Practitioners judged patients with higher relative to lower masking to be more depressed, $F(1,137) = 389.11$, $p < .0001$, $r = .96$, less sociable, $F(1,276) = 1,105.37$, $p < .0001$, $r = .89$, less socially supportive, $F(1,276) = 203.48$, $p < .0001$, $r = .65$, and less cognitively competent, $F(1,276) = 405.11$, $p < .0001$, $r = .77$.

Interaction of masking and practitioner culture

Practitioner culture moderated the effect of patient masking on practitioner judgments of sociability and cognitive competence, with interaction effects generally of small magnitude. Fig. 1 shows that the bias of practitioners perceiving higher masked patients less favorably than lower masked patients was stronger for American practitioners than Taiwanese practitioners when judging sociability, $F(1,276) = 4.91$, $p = .03$, $r = .13$, and stronger for Taiwanese practitioners than American practitioners when judging cognitive competence, $F(1,276) = 23.87$, $p < .0001$, $r = .28$. American and Taiwanese practitioners were similarly sensitive to masking bias when judging depression, $F(1,137) = 0.77$, $p = .38$, $r = .14$, and social supportiveness, $F(1,276) = 1.30$, $p = .26$, $r = .07$. There were no significant three or four way interactions of masking and practitioner culture with patient culture or patient gender.

Interaction of masking and patient culture

Patient culture moderated the effect of patient masking on practitioner judgments of sociability, social supportiveness and cognitive competence, with interaction effects varying from small to large magnitude. Table 2 shows that the negative impact of high patient masking was stronger in practitioner judgments of sociability of American compared to Taiwanese patients, $F(1,276) = 23.35, p < .0001, r = .28$. However masking bias was stronger when judging the social supportiveness, $F(1,276) = 177.82, P < .0001, r = .63$, and cognitive competence, $F(1,276) = 13.16, P = .0003, r = .21$ of Taiwanese patients relative to American patients. Practitioners demonstrated no significant difference in masking bias when judging depression in American versus Taiwanese patients, $F(1,137) = 0.13, p = .72, r = .06$.

Interaction of masking and patient gender

Patient gender moderated the effect of patient masking on practitioner judgments of the four psychological attributes, with interaction effects of medium to large magnitude. Table 2 shows that practitioners' negative bias in response to higher masking was stronger when judging women than men for depression, $F(1,137) = 5.14, p = .03, r = .35$, sociability, $F(1,276) = 32.05, p < .0001, r = .32$, social supportiveness, $F(1,276) = 73.36, p < .0001, r = .46$, and cognitive competence, $F(1,276) = 141.27, p < .0001, r = .58$.

Interaction of masking, patient gender and patient culture

Patient culture moderated the gender-based masking bias in practitioner judgments of sociability, social supportiveness and cognitive competence, with interaction effects of small to moderate magnitude. Table 2 shows that practitioner gender-based masking bias was stronger when judging American than Taiwanese patients for sociability, $F(1,276) = 27.11, p < .0001, r = .30$, social supportiveness, $F(1,276) = 12.10, p = .0006, r = .20$, and cognitive competence, $F(1,276) = 6.61, p = .01, r = .15$. Practitioners demonstrated no significant difference in gender-based masking bias when judging depression in American versus Taiwanese patients, $F(1,137) = 0.02, p = .90, r = .02$.

Discussion

Practitioner judgments were less favorable for patients with more facial masking, extending previous findings in the United States and Europe to Asian culture. The masking symptom of PD interacted with practitioner culture, patient culture and patient gender to create a multi-dimensional potential for stigmatization. The same health symptom yielded less favorable health care judgments toward one group of patients than toward a different group. These discriminations might lead to health care disparities: the unjustifiable inequality of health care access, intervention, and outcomes across different groups of individuals (Commission on Social Determinants of Health, 2008).

Practitioners' negative responses to masking applied their local cultural values when judging patients from either culture while simultaneously holding patients accountable to the patients' own local cultural values and ethnic stereotypes (Albright et al., 1997; Yang & Kleinman, 2008; Yang et al., 2007). Specifically, practitioners from both cultures were more biased by masking when judging the sociability of the American patients, and American practitioners' judgments of patient sociability were more negatively biased in response to masking than were those of Taiwanese practitioners. These results are consistent with the effect of masking to violate expectations for Americans to be outgoing, reflecting traditional American values of personal initiative and charisma. In contrast, practitioners from both cultures were more biased by masking when judging the cognitive competence and social supportiveness of the Taiwanese patients, and Taiwanese practitioners' judgments of patient

cognitive competence were more negatively biased in response to masking than were those of American practitioners. These results are consistent with expectations for Asians to be intelligent and interdependent, reflecting traditional Confucian values of self-development in the service of one's social obligations (Kitayama & Markus, 2010; Shinn, 1986).

As predicted, practitioners' judgments were more sensitive to facial masking in women than men patients. These gender results replicate findings with American lay observers' social judgments of American patients (Hemmesch, 2010; Hemmesch et al., 2009). The present findings indicate that the gendered masking bias is resistant to traditional health care training and experience, extends to Taiwanese patients, and generalizes beyond impressions of socio-emotional attributes to cognitive competence. However, as predicted, the stronger negative response to masking in women than men was weaker for Taiwanese than American patients. This larger gender difference in the United States is compatible with the theory that women are held more accountable than men for behaving in a manner that promotes social cohesion in individualistic than in collectivistic cultures (Fischer & Manstead, 2000).

Limitations

The current study is limited to practitioner judgments of video clips. The practitioner role was one of observer and evaluator of distal patient behavior. This control over role and the selection of patients and video clips afforded a strong test of masking on first-impression bias and the influence of cultural values. Yet the context was artificial compared to actual clinical care, in which impressions are formed while dynamically engaged with patients, and repeated encounters create relational history. Extensive research findings (Rubin & Schrag, 1999; Schwab, 2008; Street & Haidet, 2011; Tversky & Kahneman, 1974) show first-impression bias to be resistant to revision in subsequent encounters, yet studies often address relationships of shorter duration than those required for long-term care of PD. New studies are needed to address effects of dynamic interaction on the initial strength of masking bias as well as the relative change in the strength of bias across repeated encounters of health care for PD and other chronic diseases.

Implications for clinical practice

Neurological practitioners have knowledge that relates masking to the movement disorder of PD, yet overuse the patient's degree of facial expressivity to infer psychological traits. It is difficult for anyone to ignore the face and remain unbiased given the social mores surrounding the face, along with the physical confounding of parkinsonian masking with the expressive features of depression and dementia (Burn, 2002; Pentland, 1991). This difficulty may be compounded for practitioners, whose role in first encounters is to watch for behavior that is consistent or inconsistent with various psychological and physical diagnoses.

Biased impressions from facial expressivity can give rise to interpersonal self-fulfilling prophecies (Snyder et al., 1977). By believing highly masked patients to be less psychologically and socially capable than low-masked patients, practitioners may aggravate facial masking symptoms through their bias-confirmatory behavior, thus perpetuating the apparent validity of their initial impressions. They may interview the patient differently based on facial expressiveness and consequently elicit different behavior, such as social withdrawal in the case of higher masking and social engagement in the case of lower masking. For example, Takahashi et al. (2010) found that interviewers elicited more positive expressive facial behavior and less behavior typical of masking when they asked adaptive-coping questions of people with PD (e.g., "what did you find satisfying last week?") compared to problem-oriented questions (e.g., "what did you find difficult last week?"). The patients appeared to be more hopeless and apathetic during the problem-oriented than adaptive-coping questions. Biased observations and interviewing may result in prescribed

health regimens that are ill-suited to patient needs and poorly developed therapeutic relationships necessary for managing chronic disease (Martin et al., 2000).

People with PD can demonstrate their personalities through stories about their daily enjoyments and frustrations, and through self- and family advocacy (DeGroat et al., 2006; Lyons & Tickle-Degnen, 2003). In general, practitioners have been found to more accurately understand patients' health preferences and beliefs when patients are active rather than passive participants in the encounter (Street & Haidet, 2011). Therefore, when working with people with PD, practitioners can draw upon patients' story-telling and self-advocacy capacities by letting go of their reliance on the unresponsive face and asking about and attending to what matters most for people living with the disease.

To counter biases effectively, practitioners need training that addresses processes underlying accurate and faulty impression formation. When a situation is uncertain, perceivers resolve uncertainty by drawing upon previously formed implicit cultural and normative attitudes and beliefs to form a rapid judgment, after which they become overconfident in the correctness of the judgment. This overconfidence is augmented by automatic selective attention to evidence that confirms the impression and neglect of disconfirming evidence (Rubin & Schrag, 1999; Tversky & Kahneman, 1974). Consequently, training would involve developing and analyzing alternative explanations to the immediate impression, repeated feedback about accuracy, increasing awareness of the content and origin of one's implicit attitudes, learning how to use statistical models of prediction (which are not yet available in the case of facial masking), and strategies for engaging in scientific reasoning, data monitoring, and triangulation of different sources of information to test one's diagnostic success over time (Schwab, 2008).

The current study demonstrates that practitioners must learn how their clinical impressions are influenced by their cultural values associated with moral character and self-presentation, the intensity and implicitness of their ethnic stereotypes, and their expectations for what constitutes gender-appropriate demeanor and behavior. Practitioners can create alternative explanations for patient masking by varying the verbal content of interviews to elicit a broad range of potentially valid nonverbal and verbal cues of psychological attributes (Takahashi et al., 2010). They should translate immediate impressions based on physical signs of PD into hypotheses rather than conclusions, and test these hypotheses by triangulating information from the patient, family members, and the research literature.

Research highlights

- This study addressed gaps in research on socio-cultural and multi-dimensional origins of global health care stigma.
- Tested for first time cross-cultural bias due to parkinsonian facial masking in practitioner judgments of patients.
- Compared American and Taiwanese practitioners' judgments of American and Taiwanese men and women patients.
- Found that practitioners are biased by local cultural values and ethnic and gender stereotypes about facial expressivity.
- Documents bias due to health conditions that mimic behavior locally perceived to be indicative of moral character.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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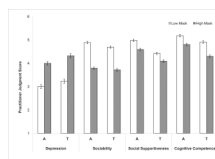


Figure 1.
American (A) and Taiwanese (T) practitioner ratings of low mask and high mask patients.
Error bars are standard error.

Table 1

Dependent Variables and Measures (Cronbach's α)

Variables	Patient Measures	Practitioner Judgments
Depression	Geriatric Depression Scale (Short Form)	<i>I feel the patient is...</i> • Depressed, withdrawn
Sociability	<i>I see myself as...</i> ($\alpha = .52$) • Outgoing, enthusiastic ^a • Reserved, quiet (rev) ^a <i>I prefer...</i> ($\alpha = .53$) • Having a lot of friends and family around • Talking with a lot of people	<i>I feel the patient is...</i> ($\alpha = .47$) • Outgoing, enthusiastic ^a • Reserved, quiet (rev) ^a <i>The patient would like...</i> ($\alpha = .89$) • Having a lot of friends and family around • Talking with a lot of people
Social supportiveness	<i>I see myself as...</i> ($\alpha = .19$) • Sympathetic, warm ^a • Critical, quarrelsome (rev) ^a <i>I prefer...</i> ($\alpha = .76$) • Doing thoughtful things for friends and family • Activities that can promote interpersonal harmony	<i>I feel the patient is...</i> ($\alpha = .78$) • Sympathetic, warm ^a • Critical, quarrelsome (rev) ^a • Likable, easy to develop rapport with <i>The patient would like...</i> ($\alpha = .89$) • Doing thoughtful things for friends and family • Activities that can promote interpersonal harmony
Cognitive competence	<i>I see myself as...</i> ($\alpha = .53$) • Open to new experiences, having broad interests ^a • Conventional, uncreative (rev) ^a • Dependable, self-disciplined ^a • Disorganized, careless (rev) ^a <i>I prefer...</i> ($\alpha = .48$) • Trying to learn new things • Keeping up with current events rather than ignoring them • Doing mentally-challenging rather than easy activities • Making my own decisions about daily activities Category Fluency Test (Animals)	<i>I feel the patient is...</i> ($\alpha = .78$) • Lower in intelligence, cognitively impaired (rev) • Dependable, self-disciplined ^a • Disorganized, careless (rev) ^a • Capable of participating in treatment and adhering to healthcare recommendations <i>The patient would like...</i> ($\alpha = .90$) • Trying to learn new things • Keeping up with current events rather than ignoring them • Doing mentally-challenging rather than easy activities • Making his or her own decisions about daily activities

Notes. All measures except Geriatric Depression Scale (Short Form) and Category Fluency Test (Animals) were self-report 7-point scales from 1 (disagree strongly) to 7 (agree strongly); (rev) = reverse-scored. Item groupings were derived from principal component analyses (PCA). Two activity preference items were dropped (not shown) from the study, *self-managing medications* and *doing things alone*, because PCA loadings were on social dimensions for patients and on cognitive competence dimensions for practitioners.

^a Items modified from Ten-Item Personality Inventory (Gosling et al., 2003).

Table 2

Means and Standard Errors (in Parentheses) for Practitioner Ratings of Patients

Practitioner Judgment	Mask	American patients			Taiwanese patients			All patients		
		Men	Women	All	Men	Women	All	Men	Women	All
Depression (N = 141)	Lower	3.44 (0.09)	3.19 (0.08)	3.31 (0.07)	2.92 (0.08)	2.94 (0.08)	2.93 (0.07)	3.18 (0.07)	3.07 (0.07)	3.12 (0.06)
	Higher	4.41 (0.09)	4.33 (0.08)	4.37 (0.07)	3.85 (0.08)	4.06 (0.07)	3.96 (0.06)	4.13 (0.07)	4.19 (0.06)	4.16 (0.06)
	All	3.92 (0.07)	3.76 (0.07)	3.84 (0.06)	3.39 (0.07)	3.50 (0.06)	3.45 (0.06)	3.66 (0.06)	3.63 (0.06)	3.64 (0.05)
Sociability (N = 284)	Lower	4.42 (0.05)	4.95 (0.05)	4.69 (0.04)	4.81 (0.05)	4.94 (0.05)	4.88 (0.04)	4.62 (0.05)	4.95 (0.04)	4.78 (0.04)
	Higher	3.54 (0.05)	3.53 (0.05)	3.53 (0.05)	3.92 (0.05)	4.01 (0.05)	3.97 (0.04)	3.73 (0.04)	3.77 (0.04)	3.75 (0.04)
	All	3.98 (0.04)	4.24 (0.04)	4.11 (0.04)	4.37 (0.05)	4.48 (0.04)	4.42 (0.04)	4.17 (0.04)	4.36 (0.04)	4.27 (0.03)
Social supportiveness (N = 284)	Lower	4.08 (0.05)	5.03 (0.05)	4.55 (0.04)	4.56 (0.05)	5.13 (0.04)	4.84 (0.04)	4.32 (0.04)	5.08 (0.04)	4.70 (0.04)
	Higher	4.26 (0.05)	4.72 (0.05)	4.49 (0.04)	4.01 (0.05)	4.38 (0.04)	4.20 (0.04)	4.14 (0.04)	4.55 (0.04)	4.34 (0.04)
	All	4.17 (0.04)	4.87 (0.04)	4.52 (0.04)	4.29 (0.04)	4.75 (0.04)	4.52 (0.04)	4.23 (0.04)	4.81 (0.03)	4.52 (0.03)
Cognitive competence (N = 284)	Lower	4.78 (0.05)	5.45 (0.04)	5.12 (0.04)	4.82 (0.05)	5.12 (0.04)	4.97 (0.04)	4.80 (0.04)	5.29 (0.04)	5.05 (0.04)
	Higher	4.63 (0.05)	4.76 (0.05)	4.70 (0.05)	4.44 (0.04)	4.38 (0.05)	4.41 (0.04)	4.54 (0.04)	4.57 (0.04)	4.55 (0.04)
	All	4.70 (0.04)	5.11 (0.04)	4.91 (0.04)	4.63 (0.04)	4.75 (0.04)	4.69 (0.04)	4.67 (0.04)	4.93 (0.04)	4.80 (0.04)