Psychophysiological evaluation of stigma towards schizophrenia

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Abstract

Stigma is a potentially destructive phenomenon that may result in negative consequences for individuals diagnosed or labeled as having a mental illness. Several recent studies suggest that contact with various stigmatized out-group members result in psychophysiological reactions indicative of negative affect. It is unclear whether such reactions extend to encounters with individuals with mental illness. Participants imagined interacting with individuals labeled or unlabeled as having schizophrenia, while corrugator supercilii (brow) EMG, palmer skin conductance, and heart rate activity were monitored. Participants were 15 males and 20 females mainly African American students between the ages of 18 and 28 who attended a historically black university in the Southeastern region of the United States. Participants reported higher SUDS ratings and exhibited higher brow muscle tension during imagery with labeled than non-labeled individuals. Psychophysiological reactivity predicted global self-reported attitudes of stigma towards labeled individuals. The findings suggest that one reason why individuals avoid individuals with mental illness is physiological arousal, which is likely experienced as negative.
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1. Introduction

One in five Americans experience a mental health condition or illness, which, when left untreated can result in profound difficulties in social and occupational functioning, as well as in quality of life.

While a plethora of treatments are available for most mental disorders, many people with diagnosable mental disorders do not seek treatment due to the pervasive stigma surrounding mental illness (CMHS, no date; USDHHS, no date, 1999). Those with severest of mental illness, like schizophrenia, are especially stigmatized (Crisp et al., 2000; Dubin and Fink, 1992; Farina, 1998). Such individuals are often perceived as dangerous, unpredictable, irresponsible, and childlike (Brockington et al., 1993; Crisp et al., 2000; Levey and Howells, 1995; Penn

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et al., 1999). These stigmatizing attitudes may be the consequence of several factors, which include labeling, self-fulfilling prophecy (Farina et al., 1992), the media's erroneous descriptions of severe mental illness (Wilson et al., 2000), and observations of the behaviors frequently associated with severe mental illness (Penn et al., 2000). Although such stigmatization has been prevalent throughout history (USDHHS, 1999), it may now be increasing in its pervasiveness (Phelan et al., 2000).

The consequences of stigma are not trivial, as it has an undesirable impact on employment, housing, relationships, treatment, and insurance. For example, findings show that when an individual receives a label of "mentally ill," (irrespective of type of mental illness) he or she will inevitably experience reduced opportunities for employment and access to resources, with only 10–30% of those with psychiatric histories being employed at any given time (Bordieri and Drehmer, 1986; USDHHS, 1999; Farina, 1998; Farina and Felner, 1973; Link, 1987; Corrigan et al., 2001; Fink and Tasman, 1992; Leete, 1992; Page, 1977, 1995). Furthermore, those with mental illness are less likely than others to be leased an apartment or allowed to live in hostels in a community (Alisky and Iczkowski, 1990; Farina, 1998; Link, 1987; Page, 1977, 1995). They also generally experience unjust divorce and child custody hearings and are seldom given security clearances (Leete, 1992). Persons with schizophrenia commonly experience personal alienation as many families and friends abandon them (CMHS, no date), and others prefer to avoid socializing with or living near them (Corrigan and Penn, 1999; Penn and Martin, 1998; USDHHS, 1999). Finally, the personal, subjective outcome of such treatment is frequently low self-esteem, shame, social ostracism, isolation, loneliness, hopelessness (USDHHS, 1999; Farina, 2000; Leete, 1992; Wright et al., 2000), reduced quality of life (Mechanic et al., 1994), exacerbation of symptoms, and an increase in levels of stress (Link et al., 1997; Markowitz, 1998).

Most, if not all the previous work in this area has examined stigmatizing attitudes and to a lesser extent, behaviors, toward individuals with severe mental illness (Link et al., 2004). However, self-report measures have significant limitations, includ-

ing social desirability contamination and potentially poor correspondence with actual behavior (Link et al., 2004). An alternative to assessing only attitudes is to examine more automatic, less controlled reactions to individuals with mental illness, such as the information obtained using psychophysiological procedures. Indeed, there is a rich tradition of the use of psychophysiological methods in the study of prejudice and bias (Guglielmi, 1999).

Vanman and his colleagues have conducted a series of studies (Vanman et al., 1990; Vanman and Miller, 1993; Vanman et al., 1997) which have consistently found that while European American participants verbally report positive evaluations for African American targets, they exhibit facial EMG activity indicative of higher negative affect. For example, in Vanman et al. (1990), twenty-three European American undergraduates were exposed to slides of students followed by different scenarios. Half the slides were of African American students and the other half, European American students. The researchers instructed students to imagine what it would feel like to work in several cooperative situations with either a European American or with an African American target. They recorded facial EMGs of participants' cheeks, brows, and lips. Their results indicated that EMG activity increased corrugator (brow) activity and decreased zygomaticus (cheek) with African American targets. This pattern has been associated with negative affect and evaluation, although Vanman et al. (1990) found no correlation between participants' self-reports of attitudes concerning interaction targets and EMG activity. They concluded that it is possible participants concealed their real feelings concerning interracial interaction and they suggest that facial EMG is useful in assessing intergroup dynamics.

Blascovich and his colleagues have conducted a series of studies that found that social interactions with stigmatized individuals induce physiological reactions associated with threat in others (Blascovich and Kelsey, 1990; Blascovich and Tomaka, 1996; Blascovich et al., 2001). For example, Blascovich et al. (2001) used sophisticated cardiovascular responses to distinguish between challenge and threat responses of participants when they were engaging in cooperative tasks with confederates with and without facial birthmarks. They defined chal-

lenge and threat responses using left-ventricular contractility, cardiac output, and vascoconstriction at the periphery during the various tasks. Blascovich et al. (2001) found that participants responded with a threat reactivity pattern when they were interacting with "stigmatized" out-group members and a challenge pattern when they were interacting with in-group members.

Perhaps one of the more exciting aspects of the lines of research conducted by Blascovich and colleagues, and Vanman and colleagues is the robustness of their findings. That is, the pattern of results has generalized across a variety of groups using various definitions of in-group and out-group membership. The purpose of the current study is to extend the work of Vanman and colleagues, and Blascovich and colleagues, to stigma towards schizophrenia, which tends to be the most stigmatizing of mental illnesses (Penn et al., 1994). It is hypothesized that (1) participants will rate themselves as having more discomfort when imagining interaction with an individual labeled as having schizophrenia compared to someone who is not; (2) participants will exhibit psychophysiological reactions associated with negative affect during exposure to someone labeled as having schizophrenia compared to exposure to an individual who is not; (3) psychophysiological reactivity during imagined interactions will predict global self-reported attitudes of stigma towards persons with schizophrenia.

2. Method

2.1. Participants

Participants were 35 individuals enrolled in general psychology courses at Jackson State University, a historically African American institution in Jackson, MS. There were 20 females and 15 males. All participants except for one European American female and one Caribbean American male of African descent were African American. To be eligible for the study, participants had to be between the ages of 18 and 28. Participants' mean age was 19.63 ($SD = 1.31$). There were no significant differences between females and males in mean age when tested by Chi Square. Individuals received course credit for

their participation in freshmen and sophomore undergraduate classes. Participants who had been hospitalized for mental illness or had a family member who had been hospitalized were not eligible to participate and were excluded from the study.

2.2. Measures

2.2.1. Demographics questionnaire

A brief demographics questionnaire was developed for the study which documented the participants' age and gender. In addition, participants indicated whether they or a close family member had ever been hospitalized for a psychiatric illness.

2.2.2. The social distance scale (SDS)

The Social Distance Scale (SDS), a proxy measure of social avoidance, consists of seven items related to interactions with an individual who has a mental illness. The participant rates each item on a 4-point Likert scale (0 = definitely unwilling to 3 = definitely willing). Performance on the SDS is indexed as the mean average of the seven items. The internal consistency (Cronbach's alpha) of this measure has been found to be between .75 and .92 (Penn et al., 1994).

2.2.3. Subjective units of discomfort scale (SUDS)

The SUDS is used to elicit subjective ratings from respondents following exposure to anxiety or fear evoking situations. This measure is especially useful when participants have been instructed to imagine their phobic stimuli. Afterwards, the respondent reports level of discomfort associated with such imaging (McGlynn and Rose, 1998). With the original development of the scale, Wolpe (1973) used anchor points from 0 (absolutely calm) to 100 (worst level of anxiety). However, investigators have modified Wolpe's approach by utilizing various other anchor points to describe levels of anxiety, fear, or distress (e.g., 100 = completely uncomfortable to 0 = completely comfortable; McGlynn and Rose, 1998).

Participants were given instruction in the use of the scale's anchors during the baseline rating. A slide of the SUDS scale was presented for reference whenever participants were asked to make ratings. In addition to baseline, SUDS ratings were collected after each imagery condition.

2.2.4. Psychophysiological measures

Psychophysiological measures were collected continuously throughout the baseline and experimental conditions. One channel of surface EMG activity was collected using a Coulbourn® High Performance Amplifier (S75-03). The signal was passed through a Coulbourn® Biofilter (S75-76) with a low cutoff of 100 Hz and a high cutoff of 1000 Hz and a Coulbourn® Contour Following Integrator (S76-01) with a 20 ms time constant. A pair of electrodes was placed over the brow (corrugator supercilii). Experimenters adhered to previous recommendations for electrode placement (Fridlund and Cacioppo, 1986; Tassinary et al., 1989). Skin Conductance (SC) was measured with sensors attached to the ventral surface of the left hand. The SC signal was processed through a Coulbourn® Isolated Skin Conductance Amplifier (V71-23). Heart Rate (HR) was measured with a photoplethysmographic sensor placed on the center of the distal phalanx of the left index finger. The HR signal was processed through a Coulbourn® Pulse Optical Densitometer (S71-40) and a Coulbourn® Tachometer (S77-26). The HR, SC, and EMG signals were sampled at 5 Hz relayed through a LabLinc® WinDaq Port (V19-02) to WinDaq® Data acquisition software.

2.2.5. Target stimuli

Portraits were of African American males and females who were unknown to participants. They were selected from a pool of un-copyrighted pictures downloaded from the Internet. Portraits were of individuals at the age typical for the onset of schizophrenia for men (early to mid 20s) and women (late 20s). Pictures were matched for physical attractiveness based on pilot work done at Howard University. Volunteer students rated the original pool of photographs based on attractiveness using a scale of 0–10, with 0 being very unattractive and 10 being extremely attractive. The final four pictures selected had an average attractiveness rating of 6.4. Examples of two of the four pictures are presented in Appendix A.

2.3. Procedure

The Jackson State University local research ethics committee approved the study. Participants first completed the demographic and social distance questionnaires, followed by the psychophysiological assessment, which involved the following procedures: participants were seated in a comfortable reclining chair in the upright position. Sensors were attached following audio-recorded instructions explaining the procedures. The participant was then instructed to rest for 5 min with eyes closed. After this rest period, there were four experimental trials, separated by approximately 2-min inter-trial intervals. Each trial began with a slide of a target individual presented on the wall directly in front of the participant. While the slide was presented, an audio-recorded biographical script was played describing the person. The biographical script was approximately 1 min in duration. During two trials, the biography included information that the target was diagnosed as having schizophrenia. Symptoms of hallucinations and erratic behaviors were described as well as prior hospitalizations. The script also included the statement that the person was currently in remission and "doing much better now." In two trials the biography did not include such labeling information. Thus, each target slide was either labeled or unlabeled with mental illness. Examples of the biographical scripts and the imagery scenarios are presented in Appendix B.

Following the biographical script for each portrait and while the slide was still being projected on the wall, a script was played with instructions for the participant to imagine engaging in a cooperative task with the person just described. The slide was then turned off for 30 s while the participant imagined this interaction. The different imagery situations included helping the person to (1) complete a job resume, (2) decide on which apartment to rent from a list of newspaper advertisements, (3) practice for a driving test, or (4) shop for clothes at the mall. The order of presentation of male and female targets, labeled and unlabeled targets, and possible cooperative tasks were counterbalanced to minimize any ordering effects.

Psychophysiological activity was recorded during the 30 s the participants were imagining the cooperative interaction. After this 30-s imagined exposure, the participants then gave SUDS ratings.

3. Results

3.1. Analysis of SUDS ratings (Hypothesis #1)

The SUDS ratings were averaged for the baseline and four different imagery periods. A 2 (Participant gender) × 2 (Label: schizophrenia versus no label) × 2 (Target gender) analysis of variance was conducted on the SUDS ratings. Participant gender was a between-groups factor, and Label and Target gender were within-subjects factors. A significant main effect for Label was obtained, $F (1, 33)=21.48$, $p<.001$, partial $\eta^2=.39$, with the average SUDS rating of the imagined interactions with labeled individuals being greater ($M=36$, $SD=23$) than the unlabeled individuals ($M=17$, $SD=21$). Therefore participants rated imagining interactions with labeled individuals as significantly more distressing than unlabeled ones (see Table 1). No other significant main effects or interactions were obtained.

3.2. Analysis of psychophysiological responding during imagery (hypothesis #2)

The within-subjects Analysis of Covariance (ANCOVA) analyses used below are one approach to the problem of intersubject variability in psychophysiological measurement. ANCOVAs were conducted by SPSS® version 12 (SPSS, Chicago, USA). A power analysis using the SamplePower® program, version 2.0 (SPSS, Chicago, USA) indicated that this study had approximately 38% power for a small effect size F and 98% power for a medium effect size F.

The EMG, skin conductance, and heart rate data were averaged for the baseline and the four different imagery periods. These values were analyzed for skewness and all values were positively skewed. All values were within acceptable tolerances for skewness after a logarithmic data transformation was performed (Tabachnick and Fidell, 2001).

A 2 (Participant gender) × 2 (Label) × 2 (Target gender) analysis of covariance was conducted on the transformed EMG data. Participant gender was the between-groups factor, and Label and Target gender were within-subjects factors. A significant main effect for Label was obtained, $F (1, 32)=4.77$, $p=.036$, partial $\eta^2=.13$, with the average microvolt level during imagined interactions with labeled individuals being greater ($M=7.0$, $SD=5.0$) than the unlabeled individuals ($M=6.3$, $SD=5.3$). Therefore participants exhibited higher EMG levels when imagining interacting with someone with schizophrenia (see Table 1). In addition, a significant main effect for the covariate was obtained, $F (1, 32)=28.31$, $p<.001$. No other significant main effects or interactions were obtained.

A 2 (Participant gender) × 2 (Label) × 2 (Target gender) analysis of covariance was conducted on the transformed skin conductance data. Participant gender was the between-groups factor, and Label and Target gender were within-subjects factors. No significant main effect for Label was obtained, $F (1, 32)=.73$, $p=.68$, partial $\eta^2=.01$. However, a significant main effect for Target gender was obtained, $F (1, 32)=5.23$, $p=.029$, partial $\eta^2=.14$, with the average palmer microsiemens level during imagined interactions with male targets being greater ($M=21.5$, $SD=26.6$) than with female targets ($M=19.4$, $SD=25.8$). Therefore participants exhibited higher skin conductance levels when imagining interacting with male targets. In addi-

Table 1
Dependent measures by label of target stimuli

Measure	Labeled[a]		Unlabeled[b]		F	df	η^2	p
	Mean	(SD)	Mean	(SD)				
SUDS[c] (Rating 1–100)	36	(23)	17	(21)	21.48	1, 33	.39	<.001
EMG (μV)	7.0	(5.0)	6.3	(5.3)	4.77	1, 32	.13	.036
Skin conductance (μS)	19.8	(25.4)	21.1	(26.7)	.173	1, 32	.01	.68
Heart rate (beats/min)	81.2	(10.0)	82.5	(13.0)	11.21	1, 32	.26	.002

[a] Target stimuli labeled with schizophrenia.
[b] Target stimuli not labeled with schizophrenia.
[c] Subjective Units of Discomfort.

tion, a significant main effect for the covariate was obtained, F (1, 32) = 170.3, $p < .001$.

A 2 (Participant gender) × 2 (Label) × 2 (Target gender) analysis of covariance was conducted on the transformed heart rate data. Participant gender was the between-groups factor, and Label and Target gender were within-subjects factors. A significant main effect for Label was obtained, F (1, 32) = 11.21, $p = .002$, partial $\eta^2 = .26$ with the average heart rate in beats per minute during imagined interactions with labeled individuals being less ($M = 81.2$, $SD = 10.0$) than with unlabeled individuals ($M = 82.5$, $SD = 13.0$). Therefore participants exhibited greater heart rate when imagining interacting with unlabeled targets (see Table 1). In addition, a significant main effect for the covariate was obtained, F (1, 32) = 38.80, $p < .001$. No other significant main effects or interactions were obtained.

3.3. Predicting social distance scale scores from psychophysiological measures (hypothesis #3)

A stepwise multiple regression analysis was performed to determine the extent to which the psychophysiological measures accounted for variance in self-reported stigma. The criterion self-report measure was the SDS. In order to reduce the number of predictor variables to a level that would be supported by the sample size, the transformed physiological responses during imagery for Target gender were averaged together so that only two variables were entered for each physiological system measured (instead of the four used in the ANCOVAs reported above). That is, EMG values obtained during imagery of labeled males and females were averaged together so as to provide one EMG value, and the EMG values obtained during imagery of unlabeled males and females were averaged so as to provide one EMG value. This procedure was also applied to the skin conductance and heart rate data. As a result, six predictor variables were entered: labeled EMG, unlabeled EMG, labeled skin conductance, unlabeled skin conductance, labeled heart rate, and unlabeled heart rate.

The results showed that labeled EMG significantly predicted SDS scores in the model ($\beta = .429$, $p = .01$), indicating higher EMG levels during the imagery of a labeled individual predicted higher SDS scores. No other psychophysiological measure was included in the final model. The final model accounted for 18.4% of the variance in SDS scores, $R^2 = 18.4$, F (1, 33) = 7.46, $p = .01$ (see Table 2).

4. Discussion

The primary purpose of this study was to examine whether individuals would demonstrate the type of psychophysiological reactions to indi-

Table 2

Summary of stepwise regression analysis for psychophysiological variables predicting self-reported social distance towards schizophrenia[a,b]

Predictors in the Model: (Constant), EMG Labeled Slides

Model	Variable/target condition	B	$S.E.\ B$	Beta	T	p
1	(Constant)	10.753	1.266		8.493	.000
	EMG/labeled	.402	.147	.429	2.731	.010

Excluded Variables

Model	Variable/target condition	Beta In	T	p	Partial correlation
1	EMG/unlabeled	.149	.381	.706	.067
	SC/unlabeled	.094	.593	.557	.104
	SC/labeled	.092	.581	.565	.102
	HR/unlabeled	− .084	− .524	.604	− .092
	HR/labeled	− .071	− .445	.660	− .078

[a] Stepwise Criteria: Probability of F to enter ≤ .050, Probability of F to remove ≥ .100.
[b] $R^2 = 18.4$ for Model 1.

viduals with schizophrenia as have been demonstrated toward other stigmatized groups (Vanman et al., 1997). A secondary purpose was to investigate whether psychophysiological responses predict self-reported attitudes toward individuals with schizophrenia. Our first hypothesis was that participants would rate themselves as having more discomfort when imagining interaction with an individual labeled as having schizophrenia than someone without that label. This hypothesis was confirmed; SUDS ratings indicated that participants rated imagining interactions with labeled targets as significantly more distressing than interactions with persons who were not labeled with schizophrenia.

Our second hypothesis, that participants would exhibit psychophysiological reactions associated with negative affect when imagining interaction with an individual labeled as having schizophrenia compared to someone who was not, was generally supported. Specifically, individuals demonstrated significantly more muscle activity of the brow (corrugator supercilii) towards labeled rather than unlabeled targets. This finding corresponds with those of Vanman and Miller (1993), Vanman et al. (1997), who hold that EMG is an effective psychophysiological method of measuring intensity of negative affective reactions related to prejudice. According to Vanman and colleagues, EMG measures have reliably yielded activity patterns when participants have reported experiencing negative affect though no overt facial expression was indicated at the time (see also Larsen et al., 2003). These results therefore concur with the conclusion of Vanman et al. (1997) that "involuntary affective measures are most likely to reflect uncontrolled, automatic reacting to out-group members" (p. 3).

Moreover, results from this study suggest that not only EMG but also heart rate is a valid measure of attitudes towards individuals with schizophrenia. Heart rate was significantly lower during imagined exposure to labeled targets as compared to unlabeled ones. On first glance, this might seem counterintuitive because heart rate increases are generally associated with increased tonic arousal, however many studies have shown that heart rate actually decelerates in response to cued aversive situations (see discussion in Andreassi, 2000). Heart rate decreases such as these have been interpreted as indicating a response to increased situational attentional demands (Bolls et al.,

2001; Lang, 1995; Lang et al., 1996). Thus, heart rate deceleration is thought to be an adaptive "preparatory response" for action (Bradley and Lang, 1994; Shoemaker, 1996; Zojonc, 1984). According to Bolls et al. (2001), "organisms are hardwired to process negative stimuli to promote survival." Following this reasoning, a phasic pattern of heart rate deceleration is consistent with the participants' negative rating of the imagined interactions with labeled individuals. For example, similar heart rate decelerations were obtained in Cacioppo and Sandman (1978) when participants viewed unpleasant autopsy slides.

Skin conductance responses were not higher during imagined interactions for targets labeled with schizophrenia. Vanman et al. (1997) have concluded that skin conductance is not as effective as EMG in indicating prejudicial attitudes. Specifically, Vanman et al. (1997) argue that facial EMG rather than skin conductance "is a better response system for differentiating the valence and intensity of affective reactions" (p. 4). According to Vanman et al. (1997), electrodermal activity in earlier studies of racial attitudes failed to demonstrate clear relationships between strength of autonomic responses and reported racial attitudes towards out-group targets. Vanman et al. (1997) hold that examination of past studies indicate that increased skin conductance only occasionally accompanies attitude intensity whether favorably or unfavorably towards out-group members (see also Cacioppo and Sandman, 1981).

While no significant difference was noted between participants' skin conductance responses to labeled or unlabeled targets, participants did, however, demonstrate greater skin conductance response levels when imagining interacting with male rather than female targets, whether labeled or unlabeled. This finding is further complicated because all of the target slides were African American. In general, African American male stimuli have been found to produce greater autonomic arousal than other racial and gender groups (Gardner et al., 2000; Porier and Lott, 1967; Rankin and Campbell, 1955; Vrana and Rollock, 1998). These studies have suggested that both European American and African American participants react with relatively increased autonomic arousal to African American male stimuli. It should be noted that this discussion of the skin conductance findings are speculative since mainly African American students

were used as participants in this study. To include more European American participants in the study would have required a significant increase in sample size in order to partition out the effect of race.

The third hypothesis, that psychophysiological reactivity during imagined interactions would predict global self-reported attitudes of stigma towards persons with schizophrenia, was also confirmed. Based on a stepwise regression analysis, higher EMG levels during imagery of a labeled target significantly predicted higher Social Distance Scale Scores. This finding supports and extends the previous two hypotheses: (1) participants on the average rated imagined interactions with individuals with schizophrenia as more discomforting; (2) they demonstrated more physiological signs of negative affect during these imagined interactions, and now (3) those who exhibited the highest muscle tension during labeled imagined interactions also reported the highest levels of social distance.

5. Conclusions

The findings of this study indicate that psychophysiological assessment can be a useful method of assessing stigma towards mental illness, particularly schizophrenia. And, because psychophysiological reactions predicted desired social distance, the findings also lend support to the validity of using self-report measures of stigma. They also suggest that one of the reasons why individuals avoid individuals with schizophrenia is due to physiological arousal, which is likely experienced as negative. This suggests a possible mechanism by which increased contact reduces stigma (Couture and Penn, 2003); via a dampening of negative affect and arousal. Future research should more closely examine whether changes in psychophysiological reactivity correspond to changes in amount and degree of contact with persons with schizophrenia. In addition, future research should examine psychophysiological reactions to actual, rather than imagined interactions, which will enhance the external validity of this study's findings. Finally, these results need to be replicated in a community sample, so as to determine whether findings observed in an undergraduate sample generalize to an older, larger, more ethnically diverse group.

Appendix A. Example target stimuli

Appendix B. Biographical scripts and scenarios

Example Biographical Scripts
Male Labeled
John is a college student who was doing pretty well until he turned 20. Since then he has undergone three psychiatric hospitalizations. John had been an excellent and very popular student. Gradually he began to lose interest in school, people, or life. His room became very disorganized with bits of paper and clothes thrown all over the floor. When he spoke, his words were all jumbled up and made no sense. John is doing much better now. His condition has been stabilized with medication.

Male Unlabeled
Jim is a college student who is on the all-star basketball team. Since he was seven years old, he has dreamed of being a part of a pro-basketball team. He does average work in his classes though

he knows he could do better. His focus is not on his subjects but on developing his skills to be the best basketball player he can in order to be recognized by professional teams. Jim has many friends, dates often, and goes to church every Sunday. He also enjoys traveling, fishing, and golf.

Female Labeled

Mary is a college student who was doing pretty well until she turned 28. Then she had to be hospitalized twice in a psychiatric facility. She had always been a loner, dressed oddly, and had very few friends. At 28, she began hearing voices call her bad names and demand she hurt herself and others. She spent most of her time in her room believing that neighbors were spying on her and sending electronic signals to control her mind. She was often heard pacing back and forth in the middle of the night screaming at the voices. Mary is doing much better now. Her condition has been stabilized with medication.

Female Unlabeled

Jean is a college student who maintains a 3.0 average. She enjoys most of her classes and usually does well in them. She has many friends and takes time to have fun, especially on weekends. She has dated since she was 15, and she is really fond of a guy she has been seeing for the past six months. Because she is from Ohio, however, it is hard for her to get used to the warm Southern Climate. She often finds herself daydreaming about Ohio's snow and warm cups of hot chocolate by the fireside.

Scenarios (Imagery of Cooperative Interaction)
Driving

Imagine yourself working with ___ to practice for a driving test. You are a skilled driver but he/she has never driven before. You practice on a street where there is not much traffic. He/she is in the driver's seat, and you sit next to him/her reminding him/her of when to slow down, turn, signal, stop, and back up.

Shopping

Imagine yourself working with ___ to clothes shop at the mall. You are good at making color combinations and know the latest styles. You pick out clothes together from the racks, and he/she tries them on. You help adjust the clothes on him/her when he/she comes from the fitting room. You both decide on an outfit to buy.

Resume Writing

Imagine yourself working with ___ to complete a job resume. He/she has never prepared a resume, but you have a lot of experience completing them. You help him/her list in order all the schools he/she has attended, the jobs he/she has held, the extracurricular activities he/she has done, and the awards he/she has been given. Both of you then agree upon a way to organize the material.

Apartment Hunting

Imagine working with ___ to decide on which apartment to rent from a list of newspaper advertisements. He/she has never rented an apartment before, but you have and know what to look for in a good apartment. Imagine helping him/her to determine how much he/she wants to spend on an apartment, what area of town he/she wants to live, and what type apartment he/she would like to have.

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