

Visual function in multiple personality disorder

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A B S T R A C T

BACKGROUND

Multiple personality disorder (MPD) is characterized by the existence of two or more personality states that recurrently exchange control over the behavior of the individual. Numerous reports indicate physiological differences, including significant differences in ocular and visual function, across alter personality states in MPD.

METHODS

The existing literature was reviewed to provide an overview of the nature and characteristics of MPD, with emphasis on reported physiologic and ocular differences across alter personalities. In addition, a case is reported of an MPD patient seen over a 3-year period.

RESULTS

Physiologic differences across alter personality states in MPD include differences in dominant handedness, response to the same medication, allergic sensitivities, autonomic and endocrine function, EEG, VEP, and regional cerebral blood flow. Differences in visual function include variability in visual acuity, refraction, oculomotor status, visual field, color vision, corneal curvature, pupil size, and intraocular pressure in the various personality states of MPD subjects as compared to single personality controls.

CONCLUSIONS

The possibility of MPDs should be considered in patients who demonstrate unusual variability in ocular and visual findings, particularly with a positive psychiatric history. The existence of visual and other physiologic differences across alter personalities in MPD offers a unique potential for the study of mind-body relationships.

KEY WORDS

multiple personality disorder, psychogenic vision disorder, vision and multiple personality disorder, psychophysiological differences

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Multiple personality disorder (MPD)

is a condition which is characterized by the existence of two or more personality states that recurrently exchange control over the behavior of the individual.¹⁻⁴ The purpose of this paper is to introduce MPD to the optometric literature, overview the nature of the condition, describe the physiological and visual differences that have been reported in alter personalities, and describe visual changes in an MPD patient over a period of three years.

MPD is most often the result of severe trauma, usually physical or sexual child abuse, in which the person learns to dissociate as a defense mechanism. Specific personalities or alter egos emerge from the host or core personality (the one that is most often present or has the most control over the person); these alter personalities play various roles in defense and survival in relation to the childhood abuse.^{2,5-7} The host personality may have lapses of memory for periods in which other personalities were functioning.⁶⁻⁸

The alter personalities of MPD patients often differ with respect to name, age (childhood personalities are common), gender, sexual orientation, style of dress, speech, mannerisms, posture, motor behavior, personality-specific physical symptoms such as back pain or headache, and other traits.^{2,3,5,7} In some cases the differences in facial expression, movement characteristics, and wardrobe are so dramatic that psychiatrists have reported experiences of failing to recognize their own patients.³

Common alter personalities include an avenger or protector who expresses anger over the abuses inflicted on the individual; a childlike figure who retains the qualities of the naive youngster; and a personality who acts out forbidden impulses. Alternate personality-specific suicidal behavior, outwardly-directed violence, depression, and substance abuse are commonly reported. The scenario of the "internal homicide," in which one alternate personality attempts to harm another, occurs frequently and illustrates the degree to which the delusion of separateness exists in MPD patients.^{3,5,6}

The average number of personalities within an MPD patient is thirteen, although this number is variable.^{3,6,9} The process of changing from one alter personality to another, referred to as "switching," usually takes less than five minutes to complete. Most changes occur within seconds. Switching often occurs in response to environmental stress or psychological triggers.⁷

In most cases, the personality presenting for treatment is unaware of the other personalities. Most patients have some alter personalities that claim to have a continuous existence, even when they are not overtly present, and to be aware of the experiences and behaviors of other personalities. Other personalities may be aware only of their own existence, and be amnesiac for the periods when they are not "out." Episodes of amnesia in which some personalities are unaware of the experiences of other personalities occur in 98 percent of MPD patients.^{6,7,10}

The existence of Jekyll and Hyde type personalities and of personality-specific amnesias make MPD a unique, bizarre, and fascinating condition. Nevertheless, it has been suggested that the multiple personalities of MPD have an analogue in normal behavior: as daily life presents demands to play different roles in different situations (e.g., parent, child, employee, friend), normal individuals typically demonstrate different aspects of personality.^{5,10,11}

MPD has long been controversial, and has been regarded as a clinical rarity. Many associate the condition with the Hollywood stories of "Sybil" or "The Three Faces of Eve," and are skeptical regarding the credibility of the diagnosis.³ However, the literature suggests that it is actually an underdiagnosed and often misdiagnosed condition.^{2,6,8} MPD patients frequently conceal the disorder with great success; some function at high levels despite the disorder, and use complex strategies to disguise the condition.⁸ Prevalence of MPD is estimated to be as high as 0.1 percent of the general population.² Over 300 cases of MPD have been reported in the scientific literature,¹² and in 1984 Braun estimated that there were 1,000 cases then in treatment.¹³

MPD is much more common in females than males. The ratio may be as high as 7:1,⁵

although it has been suggested that MPD may occur more frequently in males than previously thought.¹⁴ MPD is usually diagnosed between the ages of 20 and 50, although the first appearance of an alternate personality usually occurs during childhood.^{5,6} MPD patients are often creative, intelligent, capable people who hold respectable jobs.⁸

Therapy for MPD includes psychotherapy and hypnosis. The goal is synthesis of the existing personalities to blend them into a harmonious, functioning being.^{2,8,15}

Although MPD has long been surrounded by controversy and disbelief, today it is recognized as a diagnostic entity by the American Psychiatric Association,¹ and an organization is devoted to research and dissemination of information about the condition.^c

A screening instrument and two structured interviews have been developed to permit the systematic application of diagnostic criteria.¹⁶ The reported incidence of the condition and the volume of literature devoted to it each appear to be increasing.¹⁷

Nevertheless, the existence of MPD has been a subject of controversy in the psychiatric literature.^{3,10,16,18} This controversy has given impetus to the study of physiological function across alter personalities, on the assumption that documentation of the presence or absence of physiological differences in alter personalities would substantiate or refute the existence of the disorder as a clinical entity.^{4,7,16,18} Several experimental studies and case reports document differences in ocular status and visual function between alter personalities.^{12,19-21}

Psychophysiological differences across alter personalities

The alter personalities of MPD patients frequently exhibit personality-specific physiological traits, including dominant handedness,^{6,10} differences in response to the same medication,^{3,6,14,22} allergic sensitivities,^{6,11,14} autonomic and endocrine function,^{11,16,18} EEG,^{16,18} VEP,^{16,18} cerebral blood flow,¹⁸ and differences in visual function.^{12,19-21} Clinical

reports of physiological differences that exist in different personalities provide support for the existence of MPD as a unique diagnostic entity, and have led to scientific investigations of differential psychophysiology across alter personalities.^{4,7,16,18} Psychophysiological changes that occur across alter personalities have been attributed to shifts in cerebral hemisphere dominance, epilepsy, state-dependent learning, autohypnosis, trance-state disorder, and changes in muscle tension.^{7,11,16,23}

Several scientific investigations document differences in autonomic nervous system function across alter personalities. In one of the earliest, in 1908, Prince and Peterson²⁴ reported differences in galvanic skin responses (GSR) of three personality states of an MPD patient. Similar differences have been reported in more recent studies.^{23,25,26} Differences in skin conductance,⁴ respiration,^{4,26} skin temperature,⁴ heart rate,^{4,26} and blood pressure²⁷ in the different personalities of MPD patients have also been reported.

Studies also report differences in central nervous system activity across MPD personality states. Numerous reports document differences in the visual evoked potentials of alter personalities in individuals with MPD.¹⁸ Larmore et al.²⁷ note, in their study of one subject with four personality states, that the average visual evoked responses for each personality were as different from one another as would be expected if four different individuals had been tested.

Differences in regional cerebral blood flow²⁸ and brain electrical activity²⁹ between alter personalities of MPD patients have been reported. Electroencephalogram (EEG) studies have produced contradictory results.¹⁸

Studies of differential learning and memory suggest that, although there is extensive leakage of information across personality states, the alter personalities of MPD patients show significantly more compartmentalization of memory, particularly of autobiographical memory, than do controls. Information learned in one state of consciousness is most easily retrieved in the same state of consciousness.¹⁶

Changes in voice in different personality states

have been commonly reported. These reports are anecdotal in nature, and include reports of mute personalities and personalities with difference accents.¹⁸ Variations in thyroid function have also been reported.¹⁸

Anecdotal reports document personality-specific allergic reactions in MPD patients.^{6,11,14} Braun¹¹ reports three cases in which certain personality states were allergic to citrus juice, smoke, and cats, but other states were unaffected. Others report personality-specific responses to medication in MPD patients.^{3,6,14,22} Densen-Gerber³⁰ reported on two MPD patients who developed physical stigmata in particular personality states: one, a former heroin addict, developed needle-track marks when she switched to a drug-addicted personality; the other developed welts on his back and legs when he switched to a childhood personality state in which he had been subjected to severe physical abuse.

Visual and ocular status in MPD

Changes in visual and ocular status across alter personalities have been reported in several highly publicized cases of MPD in the popular literature.³¹⁻³³ Cases of psychogenic blindness in MPD have also been reported.⁶

Shepard and Braun,¹⁹ in an uncontrolled, unpublished study, evaluated visual function in seven subjects with MPD. They found clinically significant differences between alter states in measures of visual acuity, manifest refraction, pupil size, corneal curvature, and intraocular pressure. Variations in visual acuity between alter personalities were found in six of the seven subjects; best corrected visual acuity in different states ranged from 20/20 to 20/60. Clinically significant variations in refractive status were observed in all seven subjects and were as great as 2.75 D. Variations in pupil size in alter personalities were also observed in all subjects, and ranged from 1 mm to 3.5 mm. Corneal curvature differences of at least 0.50 D between alter personalities (as measured with the keratometer) were obtained for all subjects, and ranged as high as 1.50 D. Differences in intraocular pressure, measured with applanation tonometry, similarly occurred in all subjects and ranged from 2 mmHg to 5 mmHg. Most subjects showed little or no variation in

color vision or extraocular muscle balance between alter personalities, although one individual showed a marked difference in degree of exodeviation between alter personalities, and two subjects demonstrated normal color vision in some personality states but showed a color deficiency in others. Changes in visual fields between alter states were observed in one subject. The authors conclude that changes in visual function are observable when MPD patients switch from one personality state to another. However, normal physiological variations occur for several of the functions studied, and no control group was used to determine whether such fluctuation was greater than would be found in individuals without MPD.

In each study, each MPD subject was examined in each of three alter personalities. Each subject was capable of voluntarily "switching" from one personality to another, and did so when the examiner stepped out of the room. The control subjects were similarly examined three times while role-playing three alter personalities. The examiner was unaware as to which subjects actually had MPD and which were merely role playing.

Differences in visual acuity, refraction, peripheral vision (assessed with the Humphrey Automated Perimeter), and eye muscle balance (as measured with the Maddox wing test) across examinations for each subject were evaluated for statistical significance. In both studies, subjects with MPD demonstrated greater variability in visual function across alter personalities than control subjects who role-played the disorder. In the first study,¹² MPD subjects demonstrated greater variability than controls, at statistically significant levels, on measures of visual acuity, refraction, peripheral vision, and eye muscle balance. In the second study²⁰, statistically significant differences between MPD and control subjects were found for visual acuity and peripheral vision, but not for refraction or keratometry.

In addition, an attempt was made to determine whether differences in visual function in the alter personalities of MPD subjects are clinically significant. For each subject, the examiner rated the clinical significance of the differences in ocular findings. MPD patients had substantially greater numbers of clinically significant differences in visual measures across alter personality states than did controls. Analysis of individual functions in the second, larger study found statistically significant clinical differences on measures of Snellen acuity, refraction, visual field, eye muscle balance, and keratometry.^{12,20}

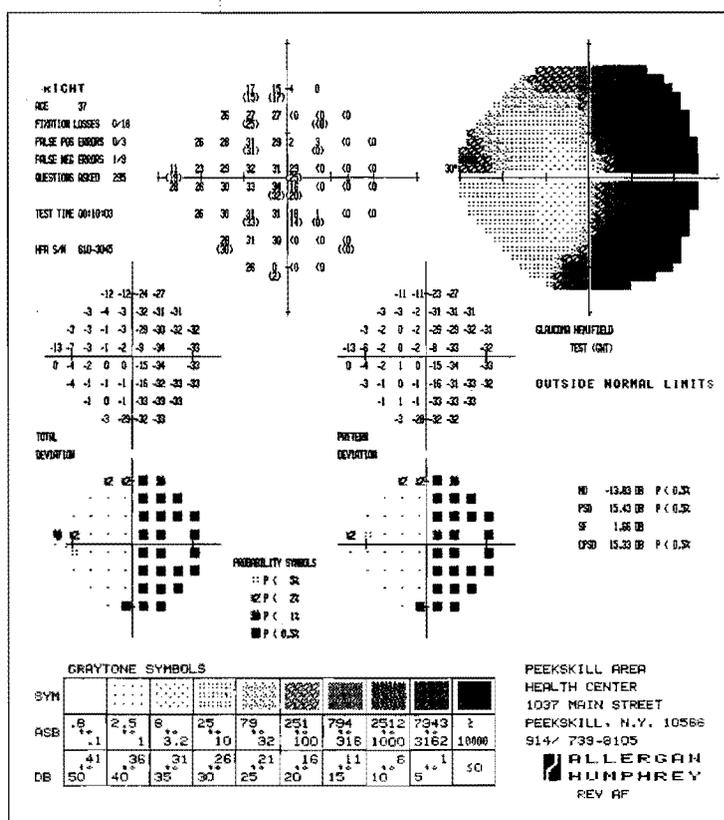


Figure 1
 Hemianopic visual field defect, present in the right eye only, June 1991.

Miller¹² and Miller et al.²⁰ sought to replicate the study by Shepard and Braun¹⁹, with the addition of a control group and a single-blind testing arrangement to improve validity. Subjects with MPD and controls trained to simulate MPD were examined by an ophthalmologist. Nine MPD subjects and nine controls were included in the initial study, and 20 MPD subjects and 20 controls in the follow-up study.

Three of the nine MPD patients reported by Miller¹² displayed highly unusual, personality-specific variations in visual function that were not amenable to statistical analysis. One patient showed an accommodative-type esotropia that was present in a childhood alter personality, but was not present in the two other (adult) personalities. Another patient showed a left exotropia (with reduced

visual acuity) in one alter personality, but not in others. A third MPD patient reported that near visual acuity improved with a reading addition in an alter personality age 38, but reported no preference for nearpoint plus lenses in childhood alter personalities age 6 and 8. None of the control subjects demonstrated similar fluctuations.

Thigpen and Cleckley³⁴ reported a case of MPD about which they later wrote a book, "The Three Faces of Eve,"³² that was popularized as a Hollywood motion picture. Thigpen and Cleckley themselves made a 30-minute sound film of the actual patient in her three different personalities. Condon et al.²¹ performed a frame-by-frame analysis of this latter film to evaluate transformations in expressive facial behavior among the three personalities. They report the existence of a transient, rapid yet pronounced exodeviation, clearly evident in the frame-by-frame analysis but not visible at normal projection speeds, that occurred far more frequently in one personality state than in the other two.

Miller¹² and Miller et al.²⁰ point out that, since the control groups were comprised of normal subjects, the question of whether the findings are specific to MPD, or might also be found in other psychiatric populations, remains unresolved. Further, it is uncertain whether the different personalities demonstrate consistent, unique visual profiles each time they emerge. Miller et al.²⁰ report that chance reexamination of a few MPD subjects did not find a consistent pattern of visual function for each alter personality, but rather found equally variable but different findings for the personalities tested.

Case report

Visual changes between personality states are commonly reported by individuals with MPD.^{6,35} One such patient, AG, a 38-year-old white female seen over a period of about 3 years by one of the authors (KT), is the subject of this case report. AG was actively in therapy, and was seen for several clinical encounters during very intense times in her therapeutic process. Two visual manifestations were noted. The first was a severe loss of peripheral visual field that occurred at a crit-

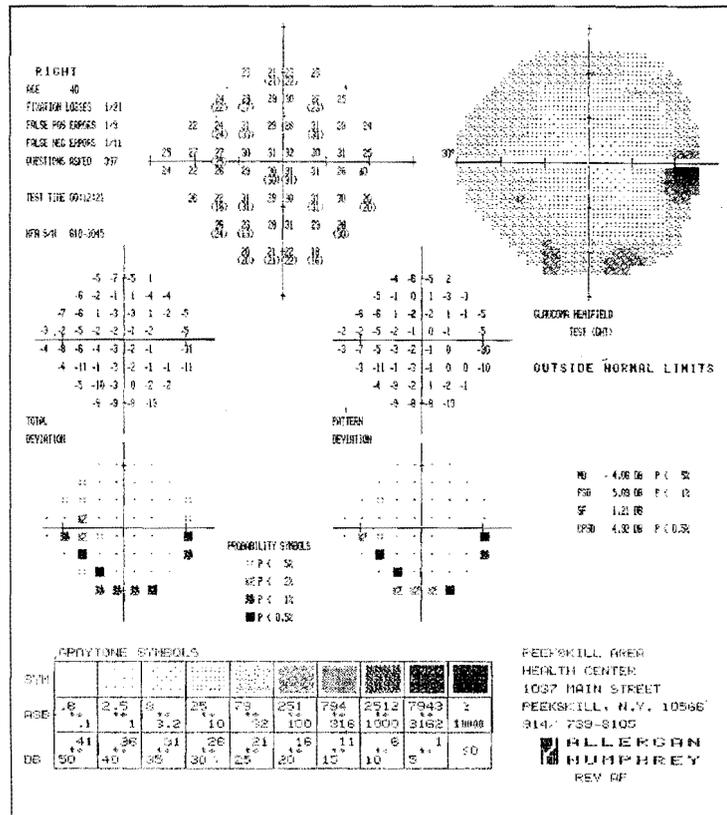


Figure 2

Normal visual field on reexamination, July 1991.

ical time in therapy and later resolved. The second was an apparent change in refractive status in different alter personalities.

AG was first examined in May 1991. Her chief complaint was that her glasses were not working properly. It was discovered that the current prescription was over-minused, and the patient was told that a new prescription would allow her to see better both at distance and near. Her reply to this was, "That is because these glasses were for AJ, not myself." She then explained that she suffered from MPD, and that different spectacles worked at various times depending on which personality was present. She explained that most of her personality states had been successfully blended through psychotherapy and that only about seven major ones presently existed. It was decided that new glasses would be ordered for the current personality, which recently manifested more often, and that she would change glasses when necessary. All other aspects of the examination, including dilated fundus examination and visual field screening, were unremarkable.

AG returned one month later, very distressed,

saying that she could not see off to the right side. At this time, she was not asked which personality was present because it was felt that this might upset her. Confrontation visual field revealed a dense right hemianopsia in the right eye only. A Humphrey 24-2 visual field (Fig. 1) was done, which supported a right hemianopsia with macular sparing. Patient reliability was good for this test, and reference levels were age appropriate. All other components of the ocular health assessment, including color vision, red cap test, and pupillary function, were unremarkable.

Summary of refractive findings over five examinations

May 23, 1991		
Subjective refraction:	-5.00 -0.75 x 05	20/25
	-6.25 DS	20/25
K:	43.50 M 05	45.00 M 95
	43.50 M 165	45.00 M 75
July 15, 1991		
Subjective refraction:	-5.75 -1.00 x 180	20/20
	-5.25 -1.00 x 135	20/20
K:	43.75 M 180	45.00 M 90
	43.00 M 165	45.87 M 75
August 7, 1991		
Subjective refraction:	-5.00 -0.75 x 180	20/20
	-5.25 -1.00 x 135	20/25
K:	43.75 M 180	45.00 M 90
	43.00 M 165	45.87 M 75
January 9, 1992		
Subjective refraction:	-6.00 -0.75 x 180	20/20
	-6.25 -1.25 x 135	20/20-2
K:	43.50 M 175	45.50 M 95
	43.00 M 180	45.00 M 90
December 3, 1992		
Subjective refraction:	-5.75 -0.75 x 90	20/20
	-5.25 -0.75 x 150	20/20
K:	43.50 M 105	45.50 M 105
	43.50 M 165	45.50 M 95

Table 1

Repeat visual fields, performed 1 month later and subsequently (Fig. 2), have been essentially unremarkable. Although numerous fixation losses, apparently caused by fatigue, suggest that the patient is an unreliable field-taker, repeated fields clearly fail to show any evidence of hemianopsia. At the 1-month follow-up, at which she said that AJ was the person present, a shift in refractive error was noted (Table 1); otherwise the examination was unremarkable.

Later the episode of visual field loss was discussed with the patient. She explained that as a child she had suffered severe abuse, along with other children, and was forced to look on while the others were abused. She now recalls (this had earlier been blocked from memory) that as a child she would mentally suppress the scenes she was forced to see. She explained that when this loss of side vision became evident, she was actively blending personalities who suffered this abuse, and that it was one of them who was present during the visual field examination.

Refractive status was evaluated at five visits between May 23, 1991, and December 3, 1992, generally by determining visual acuity with the current prescription and by performing retinoscopy, keratometry, and subjective refraction (most plus to best visual acuity). The findings are given in Table 1, and demonstrate considerable variation from visit to visit.

Subjective refraction varied over a range of 1.00 D in the spherical component and 1.25 D in the cylinder. Anisometropia also showed wide variation: on May 23, 1991, the left eye was 1.25 D more myopic than the right; at the next visit, 8 weeks later, the right eye was 0.50 D more myopic than the left.

Variability was not limited to subjective measurements. Keratometry was performed at four of the five visits, and showed considerable variation. Curvature of the flattest corneal meridian varied over a 1.25 D range; curvature of the steepest meridian varied over an 0.87 D range and corneal astigmatism varied by as much as 0.75 D in the right eye and 1.87 D in the left eye.

The variability in subjective refraction and keratometer readings from visit to visit exceeds that which can be attributed to clinical error, and suggests that real changes occurred. Some of these changes may be caused by accommodative fluctuation associated with differences in autonomic function in alter personalities. However, changes in anisometropia and in corneal curvature cannot be so explained, and the mechanisms remain obscure.

The variations in subjective astigmatism and anisometropia from visit to visit show little cor-

relation with the keratometer readings. For example, while corneal astigmatism in the left eye measured 1.00 D on January 9, 1992, and 2.87 D on August 7, 1991, the subjective astigmatism on these visits differed by only 0.25 D. Similarly, with respect to anisometropia, no consistent relation to corneal curvature was noted: on May 23, 1991, and December 3, 1992, 1.00 to 1.25 D of anisometropia was manifest, yet keratometer readings were equal for the two eyes; however, on both August 7, 1991, and January 9, 1992, the left eye manifested 0.25 D more myopia than the right, yet the keratometry readings on these two dates differed widely, the left cornea being 0.75 D flatter than the right cornea on August 7 and 0.50 D steeper than the right cornea on January 9.

Discussion

Among the most intriguing characteristics of MPD patients are the physiologic differences demonstrated in different personality states. Differences in ocular and visual status in alter personality states have been reported with respect to visual acuity, manifest refraction, pupil size, corneal curvature, intraocular pressure, binocular alignment, visual fields, and color vision. The most dramatic findings include the existence of personality-specific strabismus, and in the case reported in this paper, personality-specific hemianopsia and refractive differences in alter personalities of sufficient magnitude to require the use of different glasses. Differences in visual status between the alter personalities of MPD patients have been among the most widely documented psychophysiological differences. Clinically, therefore, optometrists should consider the possibility of MPD as an etiologic factor in patients who demonstrate unusual variability in visual and ocular status, particularly in patients with a positive psychiatric history.

The existence of personality-specific differences in visual and other physiological functions provides strong support that MPD is indeed a valid diagnostic entity. However, more extensive research is required to answer many questions that remain. Are the visual and other physiologic differences noted in alter personality states personality-specific, so that each time a given personality emerges, it manifests a consistent physiologic pattern? Or do the

physiologic differences reported in alter personalities simply reflect increased variability in physiologic functions? What are the mechanisms linking personality and physiologic state? Further research must focus on the underlying processes by which MPD patients manifest physiologic differences in alter personalities.

Many of the studies that have been reported are single case studies. There is a need for more extensive, well-controlled studies that will help distinguish true differences that exist across alter personalities from differences that result from increased arousal, attention level, and muscle tension, factors that may increase variability but are not necessarily personality-specific.

In the visual system, Miller et al.²⁰ note that MPD patients seen for chance reexamination did not demonstrate consistent, personality-specific patterns of visual function. Patient AG, the subject of the case report presented in this paper, did indicate that her required spectacle prescription consistently varied with the emergent personality, so that vision would be blurred if one personality wore another's spectacles. However, her report does not appear consistent with the refractive findings. In May 1991, the presenting personality, apparently AG, brought in glasses that significantly overcorrected myopia in the right eye and astigmatism in the left eye. She indicated that these glasses worked for AJ, but not for herself. However, in July 1991, when AJ was reportedly the personality present, refraction showed substantially less minus than indicated by the glasses previously reported to be suitable for AJ. Unfortunately, the examiner (KT) was usually unaware as to which personality was present at a particular visit, initially because of a natural reticence to discuss the subject, and later because AG's personalities were being successfully blended. In future research, it is important that the various functions be evaluated under carefully controlled conditions in which the manifesting alter personality is documented.

One might assume that refractive differences between alter personalities are caused by accommodative fluctuation associated with changes in autonomic nervous system activity. However, many of the refractive findings, as well as other differences reported in visual and

ocular function (including the existence of strabismus and clinically significant variation in keratometer measures in different alter states) cannot be so readily explained, and further research is indicated.

MPD may be a useful modality for the advancement of knowledge in behavioral medicine and behavioral optometry. The existence of personality-specific physiologic differences, including differences in visual and ocular status, offers a unique and intriguing potential for better understanding of the manner in which personality and mental state may influence physiology and be factors in vision disorder and disease.

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Footnotes

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