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An Investigation of the Relations Between Student Knowledge, Personal Contact, and Attitudes Toward Individuals with Schizophrenia

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Abstract

A survey of 118 MSW students was conducted to examine the relationship between social work students' knowledge about, contact with, and attitudes toward persons with schizophrenia. Hierarchical regression analyses indicated that students' knowledge about and contact with persons with schizophrenia were significantly related to better attitudes toward this population. Moderated multiple regression analyses revealed a significant interaction between knowledge about and contact with persons with schizophrenia, such that knowledge was only related to positive attitudes among students who had more personal contact with persons with the illness. Implications for social work training in severe mental illness are discussed (99 words).

Social workers are the primary providers of psychosocial treatment to individuals with schizophrenia (Substance Abuse and Mental Health Services Administration, 2001), a complex and disabling mental disorder that poses unique treatment challenges to mental health professionals. Recent evidence has suggested that while social workers have remained committed to serving this population, they often feel inadequately prepared for this challenging work (Author, 2004), and that the challenges they face in the course of working with persons with schizophrenia may negatively influence their attitudes toward this population (Author, in press). Such attitudes are of particular importance, as they have been consistently linked with negative outcomes among persons with schizophrenia (e.g., Moore & Kuipers, 1992; Snyder et al., 1996). Unfortunately, the mechanisms by which negative attitudes develop among social workers are not well known.

Social psychological theories of attitude and stereotype development suggest that inadequate knowledge about a group of people may lead to negative attitudes toward that group (Allport, 1954; Weber & Crocker, 1983). Given that many social workers feel inadequately prepared for working with persons with schizophrenia (Author, 2004), a lack of requisite knowledge about this population may be a primary mechanism by which negative attitudes develop. However, to date, no study has examined how social workers' knowledge about schizophrenia is related to their attitudes toward this population. One of the primary functions of social work education is to ensure that successive generations of social workers continue to "practice without discrimination and with respect, knowledge, and skills related to clients' age, class, color, culture, *disability*, ethnicity, family structure, gender, marital status, national origin, race, religion, sex, and sexual orientation" (Council on Social Work Education [CSWE], 2004, p. 7, *italics added*). An investigation of the relationship between knowledge and attitudes about schizophrenia is of particular importance to social work educators, as it can provide key insights about how negative attitudes develop among social

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workers, and serve to guide the development of professional training curricula that focuses on facilitating more positive attitudes toward working with individuals with schizophrenia.

Knowledge, Stigma, and Attitude Development

Although clinical social workers are trained in diagnosing and treating severe mental illness, they are not immune to the continuing social stigma that surrounds society's attitudes toward this population. Social work educators have long recognized this, and for the past several decades mandated the exploration of attitudes, values, and ethics in social work education (CSWE, 2004; Garcia & Van Soest, 1997; Van Soest, 1994). Stigma may be defined as a mark of shame or disgrace that is viewed as not normal and "is manifested by bias, distrust, stereotyping, fear, embarrassment, anger and/or avoidance" (Department of Health and Human Services, 1999). Such stigma is often operationalized through the development of negative stereotypes and attitudes toward a group of people that are based on either a lack of knowledge or inaccurate knowledge about some aspect of that group (Allport, 1954; Sherman, 1996; Weber & Crocker, 1983). For example, certain stereotypes about individuals with mental illness have derived from ill-formed notions about the dangerousness of such persons (e.g., Corrigan, Markowitz, Watson, Rowan, & Kubiak, 2003).

Cognitive models of stereotype development support the link between knowledge and attitudes by conceptualizing stereotypes as simplified collections of categorized information, which are often based on inaccurate or incomplete information (Hilton & von Hippel, 1996). Perhaps the most prominent of these models suggests that stereotypes are formed from illusory connections made between salient, but often incomplete, knowledge about dissimilar individuals and the perceived social group with which they belong (Hamilton, Dugan, & Trolie, 1985; Hamilton & Gifford, 1976; Hamilton & Rose, 1980). For example, in the illustration provided above about individuals with mental illness, salient information (i.e., a violent act) is inappropriately connected with members of an outgroup (i.e., individuals with mental illness), because of the shared distinctiveness of violence and mental illness.

Implicit in cognitive models of stereotype formation is the assumption that stereotypes are not necessarily malevolent, but are usually incorrect (Ryan, 2002). However, because negative information is usually the most salient (Mullen & Johnson, 1990) and there exists a substantial information processing bias (i.e., in-group/out-group bias) that favors one's own group over another (Hewstone, Rubin, & Willis, 2002), stereotyped information is often anything but benign. Consequently, since the information that comprises stereotypes is usually incomplete and unduly negative, lack of knowledge constitutes a primary mechanism by which negative attitudes and stereotypes develop and are maintained. Within the field of mental health and social work education, numerous studies have supported this premise, arguing for the importance of providing social workers and related professionals with appropriate and accurate information mental illness, as a method of ameliorating negative attitudes and stereotypes. For example, Corrigan and colleagues (2002) found that misconceptions about the dangerousness of persons with mental illness had a significant impact on the fearful attitudes of community college students toward such individuals. Another study of social work students found knowledge about psychotropic medication to be related to social work students' attitudes toward taking such medications (Bentley, Farmer, & Phillips, 1991). Indeed, this knowledge/stereotype connection has been the underlying assumption of many educational and awareness campaigns to remediate negative attitudes toward different groups (e.g., Hill & Augoustinos, 2001), and has been widely applied to the understanding of stereotypes about minority populations (e.g., Henderson-King & Nisbett, 1996; Rosenfield, Greenberg, Folger, & Borys, 1982).

Research supporting cognitive models of stereotypes, which suggest that stereotypes stem from information-processing biases, have extended beyond looking at traditional minority populations, and have begun focusing on individuals with mental illness. Broadly, this literature has indicated that widespread misconceptions about the association between violence and mental illness has significantly influenced society's attitudes toward this population (Corrigan, Markowitz, Watson, Rowan, & Kubiak, 2003; Corrigan, Watson, Gracia, Slopen, Rasinski, & Hall, 2005; Haghghat, 2001), and that correcting this misconception has some benefit in improving people's attitudes toward the severely mentally ill (Corrigan, Watson, Warpinski, & Gracia, 2004). Findings specific to schizophrenia have suggested that stigmatizing attitudes are internationally ubiquitous (Lee, 2002), are related to misconceptions about dangerousness and other factors presumed to be associated with the illness (Angermeyer & Matschinger, 2005; Penn, Kohlmaier, & Corrigan, 2000), and may to some degree be ameliorated by public information campaigns (Angermeyer & Matschinger, 2005; Penn, Chamberlin, & Mueser, 2003). One particularly informative study by Link, Phelan, Bresnahan, Stueve, and Pescosolido (1999) found that using a nationally representative sample of persons in the United States, 61% believed that persons with schizophrenia were likely to be violent, which is in stark contrast with available evidence (Swanson et al., 2006). Furthermore, studies have expanded these findings beyond the lay public, and documented the presence of these misconceptions among some health-care student populations (Llerena, Caceres, & Penas-Lledo, 2002), including social work students (Schwartz, 2004). Such findings point to the importance of knowledge about schizophrenia in both attitude formation and modification, and the promising role of social work education in addressing negative attitude development.

Intergroup Contact and Attitude Development

Although substantial research has indicated that there is a relationship between the amount of information one has about a group and one's attitudes toward that group, the development and modification of attitudes is not so straightforward. While knowledge about a particular group can have a substantial impact on attitudes, at least one other important factor contributes to attitude development: personal contact. Theories of intergroup relations have put forth this "contact hypothesis", which suggests that not only does information about a specific group influence attitudes, but so does actual exposure to and direct contact with that group (Allport, 1954; Messick & Mackie, 1989). Of course, knowledge and contact are closely related, because at least some of the information a person learns about another group stems from direct contact with members of that group (Pettigrew, 1998). However, research has indicated that contact with members of dissimilar groups influences attitude development beyond the information-gathering qualities associated with this process, as intergroup contact serves to lessen social distance, blur intergroup boundaries (Miller, Brewer, & Edwards, 1985), and reduce intergroup anxieties (Hewstone, 2003). Furthermore, the contact hypothesis may be a useful paradigm to guide the development of approaches aimed at improving attitudes toward different social groups (Allport, 1954), particularly those who are disadvantaged, stigmatized and/or marginalized by the majority culture. Indeed, many have found success in applying the contact hypothesis to reducing negative attitudes toward minority (e.g., Wittig & Grant-Thompson, 1998) and other stigmatized populations (e.g., Bowen & Bourgeois, 2001). Social work educators have also applied these findings to address attitudes and values development among their students. For example, Shor and Sykes (2002) found that the integration of individuals with mental illness in the social work classroom setting was effective at reducing students' stereotypes toward this population. Moreover, some have suggested that the effects of intergroup contact may moderate the effects of knowledge on attitude development and change, such that individuals who have had more contact with a stigmatized population may be more influenced by new stereotype-incongruent information (Pettigrew, 1998; Weber & Crocker,

1983). Unfortunately, how contact and knowledge interact to influence attitudes is not well understood, particularly the attitudes of social work students toward individuals with severe mental illness.

While the contact hypothesis has been explored primarily with minority populations, some research has indicated that contact with individuals with mental illness also influences attitudes toward this population. For example, Link and Cullen (1986) found that the amount of voluntary and involuntary contact Midwestern U.S. community residents had with individuals with mental illness was negatively related to perceptions of dangerousness, even among residents who had primarily involuntary contact with such individuals. Angermeyer and Matschinger (1997) found in a national German sample that personal experiences with mental illness were associated with lower ratings of social distance from individuals with mental illness. Such findings highlight the importance of personal contact with individuals with mental illness to attitude development and modification. Recently, research on contact with individuals with mental illness has been extended more specifically to individuals with schizophrenia, suggesting that individuals who have had less contact with persons with schizophrenia maintain greater social distance from such individuals and perceive them to be more dangerous (Penn et al., 1994). Furthermore, experimentally manipulated increases in contact with individuals with schizophrenia have generally been shown to improve attitudes toward this group (Corrigan et al., 2001, 2002; Reinke, Corrigan, Leonhard, Lundin, & Kubiak, 2004; but see Penn & Link, 2002).

Although contact with individuals with schizophrenia is an important factor in the development of attitudes toward this group, other factors such as knowledge, may also be important to understanding the process of attitude development, maintenance, and modification. There has been surprisingly little research on how knowledge about and contact with persons with schizophrenia interact to influence attitudes, particularly among social work students, who will eventually provide the majority of psychosocial treatment for this population. To date, the only known study to examine how both knowledge and contact with individuals with mental illness influences attitudes has lent some support to the contact hypothesis. Holmes, Corrigan, Williams, Canar, and Kubiak (1999) reported that undergraduate students who took a general psychology course or a class on severe mental illness and who had more direct contact with individuals with mental illness, exhibited greater improvements in positive attitudes toward such individuals. However, this research was limited to an examination of attitudes toward individuals with mental illness in general, which may not be generalizable to attitudes toward individuals with specific and highly stigmatized mental illnesses, such as schizophrenia. Further research on how knowledge and contact interact to influence attitudes toward this population is clearly needed.

This research sought to examine the relationship between social work students' attitudes toward and knowledge about schizophrenia, and the degree to which this relationship is moderated by personal contact. Drawing on early social psychological theories of stereotype and attitude development, we examined the following hypotheses:

- H₁** There is a significant positive relationship between social work students' knowledge about schizophrenia and their attitudes toward this population.
- H₂** There is a significant positive relationship between the amount of contact students have with individuals with schizophrenia and their attitudes toward this population.
- H₃** The relationship between students' attitudes toward and knowledge about schizophrenia is moderated by the amount of contact they have with this population, such that the relationship between knowledge and attitudes is

stronger for students who have more frequent and closer contact with this population.

Method

Participants

A convenience sample of first and second year master's-level social work students ($n = 118$) was surveyed. Participants were predominantly female ($n = 89$), with ages ranging from 22 to 62 years ($M = 32.30$; $SD = 9.91$). The majority of the participants were Caucasian ($n = 98$), 13 were African American, 1 was Hispanic, 1 was Asian, and 5 did not report their racial background or reported it as other. Students' educational backgrounds were primarily social science disciplines ($n = 80$), and their master's specialization was educationally diverse with regard to the four specializations offered by the participating institution, with 57 specializing in mental health, 38 in child welfare, 11 in health care, and 7 in community organization. Five individuals did not report on their master's specialization.

Procedures

Participants were recruited from three sections of Human Behavior and the Social Environment I and one section of Human Behavior and the Social Environment II by their instructors to participate in a study of their perceptions and knowledge about schizophrenia. Students were surveyed during their regularly scheduled classroom session, and were asked to complete a questionnaire assessing their knowledge about, attitudes toward, and exposure to individuals with schizophrenia during the final fifteen minutes of class. The instructor informed students that their participation in this research was completely voluntary and would not affect their grade or standing in the class or with the school in any way. During the survey, the instructor was required to leave the room, while students returned the unsigned surveys, completed or not, to a blank envelope located at the front of the classroom. The authors then retrieved the envelopes containing the surveys from each instructor. For those choosing to participate, the survey took no longer than 15 minutes to complete. This research was approved by the participating university's Institutional Review Board.

Measures

Knowledge about schizophrenia—Participants' knowledge about schizophrenia was assessed using the Knowledge About Schizophrenia Questionnaire (KASQ; Ascher-Svanum, 1999), a 25-item multiple choice questionnaire covering knowledge about the symptoms (e.g., "A person with schizophrenia nearly always has [the following symptoms]"), etiology (e.g., "Which of the following is a possible cause of schizophrenia?"), and treatment of schizophrenia (e.g., "Common side-effects of antipsychotic drugs are ..."). The KASQ was developed in a series of four studies with inpatients with schizophrenia, and demonstrated adequate internal consistency (all $\alpha > .80$) and high test-retest reliability ($r = .83$; Ascher-Svanum, 1999). Test difficulty averaged at a 75% correct response rate. Throughout the course of these studies, the construct validity of the KASQ was also established by showing that the KASQ was sensitive to changes in knowledge after exposure to an educational program. In this sample of social work students, six items on the KASQ concerning the prevalence, prognosis, and diagnosis of schizophrenia, common side-effects of antipsychotic medications, and symptoms of the illness that do not respond to treatment, were removed from the scale due to low reliability and/or variability. We found the internal consistency of this revised 19-item measure to be acceptable ($\alpha = .75$).

Attitudes toward individuals with schizophrenia—Participants' attitudes toward individuals with schizophrenia were measured using a novel 12-item self-report questionnaire designed by the first author to assess social work students' general attitudes about individuals with schizophrenia, (e.g., "Individuals with schizophrenia are dangerous", "Individuals with schizophrenia can lead full and satisfying lives", "I would not want to live next door to an individual who has schizophrenia"), as well as their attitudes about working with individuals with this illness (e.g., "I would find little satisfaction in working with individuals with schizophrenia"). The instrument contained both items related to positive and negative attitudes. Items were rated using a Likert scale ranging from 1 ("strongly disagree") to 6 ("strongly agree") and recoded such that higher scores represent more positive attitudes. This instrument was developed based on the Opinions About Mental Illness scale (Cohen & Struening, 1962) and Community Attitudes Toward Mentally Ill scale (Taylor & Dear, 1981), as well as previous work assessing social workers' attitudes toward individuals with severe mental illness (Author, in press; Author, 2004). Principal components analysis (not shown) supported the two-factor (general attitudes and attitudes about working with individuals with schizophrenia) structure of this instrument. Subscale scores reflecting positive attitudes were computed by averaging items within each subscale. We found the internal consistency of both the general attitudes and attitudes about working with individuals with schizophrenia subscales to be within acceptable ranges ($\alpha = .75$ and $.82$, respectively).

Contact with individuals with schizophrenia—Participants' contact with individuals with schizophrenia was assessed with regard to both degree and frequency. Degree of contact was assessed using a 9-item checklist asking participants to indicate the various levels of exposure they have had to schizophrenia. Degree ranged from exposure to observational/medial depictions of schizophrenia (e.g., "I have watched a television program/movie or read a newspaper/magazine article about a person with schizophrenia") to exposure to individuals with schizophrenia living in the respondent's household ("There are members in my household who have schizophrenia"). Items were weighted based on their social distance from persons with schizophrenia (e.g., medial depictions representing greater social distance than living with a person with schizophrenia), with lower scores indicating greater social distance. Total degree of contact was computed by summing the number of areas of exposure to schizophrenia each participant endorsed. Frequency of contact was assessed using a single-item 5-point graphic scale asking participants to rate, from "never" to "daily", the frequency with which they have contact with persons with schizophrenia.

Results

Do Knowledge and Contact Relate To Social Work Students' Attitudes About Schizophrenia?

We began our examination of the relationships among social work students' attitudes toward, knowledge about and contact with individuals with schizophrenia by computing zero-order correlations among these constructs. As can be seen in Table 1, social work students who knew more about schizophrenia were significantly more likely to exhibit positive general attitudes toward this population, and were also more likely to have positive attitudes toward working with individuals with schizophrenia. In addition, both frequency and degree of contact with individuals with schizophrenia were also significantly positively associated with students' general attitudes toward this population, as well as their attitudes toward working with individuals with schizophrenia. Such findings would seem to indicate the importance of exposing students to both information about schizophrenia and direct practice experience with individuals who have this illness.

After finding that students' attitudes about schizophrenia were significantly related to both their knowledge about and contact with individuals with the illness, a series of hierarchical regression analyses was conducted to examine the independent relationship between each of these factors and students' attitudes. As can be seen in Table 2, results from these analyses indicated that although knowledge about schizophrenia did explain a significant amount of the variance in students' attitudes toward working with this population, both degree and frequency of contact with individuals with schizophrenia continued to explain a significant amount of variance in students' attitudes, above and beyond their knowledge about the illness. However, due to the substantial shared variance between our measures of contact, neither degree nor frequency of contact with individuals with schizophrenia provided an individual significant contribution to students' attitudes toward working with this population. With regard to students' general attitudes toward individuals with schizophrenia, again knowledge was significantly related to students' attitudes, however degree and frequency of contact only provided a marginal independent contribution above and beyond knowledge. Such findings indicate that both knowledge about the illness and contact with individuals who have schizophrenia provide unique contributions toward students' attitudes toward working with this population, but that students' general attitudes are primarily related to the knowledge they have about the illness.

How Do Knowledge and Contact Interact To Impact Students' Attitudes About Schizophrenia?

After finding that both knowledge about and contact with individuals with schizophrenia were significantly related to students' attitudes toward this population, we then conducted a series of moderated multiple regression analyses to examine how knowledge and contact interact to impact social work students' attitudes. As can be seen in Table 3, there was a significant interaction between the influence of knowledge and the degree of contact with persons with schizophrenia on students' general attitudes and attitudes toward working with this population. The direction of these interactions indicated that the closer contact students had with this population, the more impact knowledge had on their attitudes. As can be seen in Figure 1, for students who had low degrees of contact, knowledge bore little association to their general attitudes toward individuals with schizophrenia, compared to students who had high degrees of contact. Similarly, knowledge had much more strongly related to students' attitudes toward working with individuals with schizophrenia when students had higher degrees of personal contact.

With regard to the moderating effects of the frequency with which students' had contact with persons with schizophrenia, only the relationship between general attitudes and knowledge was affected differentially among students with varying frequencies of contact with this population (Table 3). As can be seen in Figure 2, the pattern of this interaction was the same as the pattern observed for the degree of contact students had with individuals with schizophrenia, in that for students who had low frequency contact with this population, their general attitudes toward schizophrenia were not significantly related to their knowledge about the illness. However, knowledge was significantly associated students' attitudes toward persons schizophrenia when students had higher frequencies of contact with this population. Such findings seem reinforce the importance of providing students with direct experience with individuals with schizophrenia, in addition to providing them with "textbook" knowledge about the illness.

Discussion

The attitudes social workers and other professional caregivers hold toward individuals with schizophrenia have consistently been shown to be related to treatment outcomes among this population (Barrowclough et al., 2001; Heresco-Levy, Ermilov, Giltsinsky, Lichtenstein, &

Blander, 1999; Moore & Kuipers, 1992; Snyder et al., 1996), and both social psychological and schizophrenia research suggest that negative attitudes may stem largely from knowledge deficiencies (e.g., Allport, 1954; Penn, Kohlmaier, & Corrigan, 2000). To the best of our knowledge, this is the first research to examine social work students' knowledge about schizophrenia, and its relation to their attitudes toward this population. Given that the number of items social work students answered correctly on the KASQ and their various attitudes were positively related, our research suggests that knowledge may have a significant influence on social work students' attitudes. Furthermore, consistent with our second hypothesis, both degree and frequency of contact with individuals with schizophrenia were positively related to social work students' attitudes and knowledge about the disorder, suggesting that personal contact may also be an important contributor to social work students' attitudes. Most importantly, however, consistent with our third hypothesis, we found that although both contact and knowledge were positively related to attitudes, the influence of knowledge about schizophrenia on social work students' attitudes existed only when students had frequent and high degrees of contact with this population. In contrast, little to no relationship was observed between knowledge and attitudes among students who had less contact with persons with schizophrenia. Such findings point to the critical importance of exposing social work students not only to didactic knowledge about schizophrenia, but also direct contact with individuals suffering from this disorder.

It should be recognized that this research contains several important limitations that will need to be addressed in future studies. First, these data only show that knowledge about schizophrenia is associated with social work student attitudes, even though we propose that knowledge influences students' attitudes toward this population. While there is good theoretical and some experimental evidence to support the direction of our hypothesis, the possibility of reverse causation cannot be ruled out. Although seemingly unlikely, it may be the case that individuals who have more positive attitudes about schizophrenia are more likely to actively seek out information about the disorder, thus indicating that attitudes influence knowledge development, not vice versa. Future longitudinal studies will be necessary to examine and clarify the strength and causal direction of the relationship between these constructs over time.

Second, it is important remember that since this was not a longitudinal investigation, we were not able to assess whether changes in knowledge and contact were related to changes in attitudes. As a consequence, implications regarding the effects of increased knowledge and contact on attitude change among social work students are tentative. Future research would benefit from examining experimental strategies to improve social work students' knowledge about schizophrenia, and see if improvements in attitudes follow. Preliminary work with the general population (e.g., Corrigan et al., 2001, 2002) and social work students (Shera & Delva-Tauiiili, 1996) suggests that this may be so, however, larger experimental investigations are needed to confirm these findings. In addition, longitudinal studies could be helpful for identifying potential mediators of the relationship between knowledge and attitudes, to identify the mechanisms by which improved knowledge affects attitudes. Such findings could lend strong support to improving education on schizophrenia in social work, and potentially have positive effects on the attitudes of social workers working with this population and the outcomes of the clients they serve.

Finally, it should be noted that this research was based on a relatively small proportion of social work students within a single social work program, who volunteered to participate in this study. As such, the findings from this research may not generalize beyond our study sample. Larger multi-site investigations are needed to confirm these results before firm conclusions can be made regarding the general impact of knowledge and contact on the attitudes of social work students toward individuals with schizophrenia.

Despite these limitations and considerable need for further research to clarify the generalizability of these findings, the results of this study point to two important implications for social work education as they pertain to this study population. First, given that knowledge was significantly related to social work students' attitudes among our sample, it may be of the utmost importance to ensure that our students are receiving the knowledge and mastering the skills they need to work appropriately and effectively with individuals with schizophrenia. As discussed above, the attitudes professional caregivers hold toward individuals with schizophrenia is of great importance to the recovery of these individuals, and while various pharmacological and psychosocial treatments have been developed to improve the recovery of this population, these strategies are likely to be severely hindered if the staff who provide these interventions hold negative attitudes toward the people they are serving (e.g., Day et al., 2005). Further, the National Association of Social Workers (1999) indicates that, "the primary mission of the social work profession is to enhance human well being and help meet the basic human needs of all people, *with particular attention to the needs and empowerment of people who are vulnerable, oppressed and living in poverty.*" (italics added). Within the field of mental health, it is individuals with severe mental illness, particularly schizophrenia, who are most vulnerable and oppressed, which beckons the need for well-trained social work professionals who have positive attitudes toward serving this population.

The need for social workers who have adequate knowledge about the population they work with is not at all novel (e.g., Bentley, Farmer, & Phillips, 1991), and the results of this study continue to underscore this necessity. Unfortunately, little is known about the information social workers receive regarding schizophrenia (or any other mental illness) in their training. A survey of programs in the 1990s was not comforting, in that less than half of social work programs were providing *any* content on psychopharmacology about *any* mental illness (Libassi, 1990), and to date no specific standards have been developed regarding what social work students need to know about schizophrenia and other severe mental illnesses. At the same time, practicing social workers report feeling ill-prepared for their work with this population (Author, 2004), and our own experiences suggest that the amount of information social work students' receive about schizophrenia during their education may be limited primarily to descriptive information on symptomatology, rather than addressing issues such as the course, prognosis, and effective treatment for supporting the recovery of individuals with this illness. It will be of critical importance for future research to systematically investigate the degree to which we are adequately preparing our students in social work education for working with this population, and begin to document areas in need of enhancement. Such research could ultimately lead to the development of curriculum guidelines, as Farmer, Walsh, and Bentley (2006) have recently begun with regard to social work training in psychopharmacology.

The second important implication of this research is that although it appears to be important to educate social work students in the classroom about schizophrenia, it appears to be equally, if not more important to ensure that students who plan to work directly with this population have some first-hand exposure to individuals suffering from this illness. Our results indicate that although knowledge was related to social work students' attitudes, information about the illness was only related to the attitudes of students who had more contact with this population. It has been suggested for some time that training for working with individuals with schizophrenia and other severe mental illnesses needs to encompass not only didactic knowledge and classroom skill training, but also direct practice contact with the population of interest (e.g., Minkoff & Stern, 1985). One of the most promising options for achieving this goal is a model that coordinates classroom knowledge and skill development with the field education learning plan.

As social work educators have done with many other marginalized populations (e.g., Walters, Strom-Gottfried, & Sullivan, 1998), the field experience can be used to provide students with the opportunity to examine their attitudes toward individuals with schizophrenia and dispel common stereotypes about such individuals (e.g., that persons with schizophrenia are often violent or that they can never achieve fulfillment in their lives), in addition to being a critical component of gaining knowledge about a population. Such experiences need not be limited to traditional “clinical work”, but can range from advocacy initiatives involving the National Alliance on Mental Illness to volunteering with outreach programs that focus on reducing homelessness. In addition, in our own teaching experiences we have found it particularly useful to arrange contact with persons with schizophrenia as part of routine classroom learning, which can be directed by the course instructor as part of a classroom assignment. This can be done by asking consumers with schizophrenia to be guest speakers to talk about living with mental illness and how they have achieved recovery, as well as inviting their family members to speak to students. Such experiences can be incorporated into learning modules about severe mental illness. One of the authors (C.E.N.) has done this and students are asked to write reaction papers to the consumer/family presentations. Further, assignments giving students the opportunity to experience and reflect upon the community services that frequently serve individuals with schizophrenia (e.g., drop-in centers or clubhouses) can also be effective avenues for increasing contact with this population. Another approach, reported by Shor and Sykes (2002), is to incorporate structured dialog between students and individuals with mental illness in the classroom as promising avenue for increasing student contact with this population. While it will be important to first see if the findings of this research generalize to other social work students, given the results of this study, such methods may provide social workers with the exposure they need to persons with schizophrenia that optimizes their attitudes toward these individuals and the impact of classroom learning on these attitudes.

In summary, this research found significant relationships between social work students’ knowledge about schizophrenia and their attitudes toward this population. However, this relationship was only present among those students who had more contact with individuals with the illness, as little to no relation between knowledge and attitudes was observed for students with low degrees and frequencies of contact with this population. While replication studies employing with larger sample sizes and longitudinal designs will be important to verify these results, such findings tentatively point to the importance of not only textbook learning about schizophrenia, but also direct and consistent contact with this population as a method of ensuring students have the attitudes they need to help such individuals recover from this severe and persistent illness.

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Figure 1.
Interactions Between Knowledge and Degree of Contact in Predicting Social Work Students' Attitudes Toward Individuals with Schizophrenia.

Figure 2.
Interaction Between Knowledge and Frequency of Contact in Predicting Social Work Students' Attitudes Toward Individuals with Schizophrenia.

Relationships Among Social Work Students' Knowledge About, Contact With, and Attitudes Toward Individuals With Schizophrenia.

Table 1

Measure	1	2	3	4	5
1. General attitudes	-				
2. Attitudes toward working	.58**	-			
3. Knowledge	.31**	.36**	-		
4. Frequency of contact	.21*	.27**	.16†	-	
5. Degree of contact	.25**	.29**	.31**	.59**	-
M	4.45	4.47	.82	1.30	4.43
SD	.73	1.00	.15	1.27	2.61

Note. Due to missing data, N ranges from 114 to 118 depending on the analysis.

†
p < .10,
**
p < .05,

p < .01

Hierarchical Linear Regression Models Predicting Social Work Students' Attitudes Toward Individuals With Schizophrenia From Knowledge and Contact.

Table 2

Variable	General Attitudes			Attitudes Toward Working		
	B	SE B	β	B	SE B	β
Step 1						
Knowledge	1.12	.33	.31**	1.79	.44	.36**
Step 2						
Knowledge	.94	.34	.26**	1.52	.45	.31***
Degree of Contact	.04	.03	.13	.05	.04	.12
Frequency of Contact	.29	.35	.09	.66	.46	.15

^a $\Delta R^2 = .04$, $\Delta F(2, 110) = 2.27$, $p = .11$

^b $\Delta R^2 = .06$, $\Delta F(2, 110) = 3.75$, $p < .05$

* $p < .05$,

** $p < .01$

Moderated Multiple Regression Analyses Predicting Social Work Students' Attitudes Toward Individuals With Schizophrenia From Interactions Between Knowledge and Contact.

Table 3

Variable	General Attitudes			Attitudes Toward Working		
	B	SE B	β	B	SE B	β
Moderated by Degree of Contact						
Step 1						
Knowledge	1.27	.46	.26**	1.51	.45	.30**
Degree of Contact	.07	.04	.18†	.08	.04	.21*
Step 2						
Knowledge	1.37	.45	.28**	1.62	.44	.32**
Degree of Contact	.05	.04	.14	.06	.04	.16†
Knowledge X Degree of Contact	.36	.16	.20*	.41	.16	.22*
Moderated by Frequency of Contact						
Step 1						
Knowledge	1.40	.44	.29**	1.64	.43	.33**
Frequency of Contact	.69	.39	.16†	.95	.38	.22*
Step 2						
Knowledge	1.38	.44	.28**	1.62	.43	.33**
Frequency of Contact	.66	.38	.16†	.93	.38	.21*
Knowledge X Frequency of Contact	4.32	2.00	.19*	2.76	1.98	.12

†
*
**
 $p < .10$,
 $p < .05$,
 $p < .01$