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## Predictors of Shared Decision Making and Level of Agreement between Consumers and Providers in Psychiatric Care

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## Abstract

The purpose of this study was to quantitatively examine elements of shared decision making (SDM), and to establish empirical evidence for factors correlated with SDM and the level of agreement between consumer and provider in psychiatric care. Transcripts containing 128 audio-recorded medication check-up visits with eight providers at three community mental health centers were rated using the Shared Decision Making scale, adapted from Braddock's Informed Decision Making Scale (Braddock et al., 1997; 1999; 2008). Multilevel regression analyses revealed that greater consumer activity in the session and greater decision complexity significantly predicted the

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SDM score. The best predictor of agreement between consumer and provider was “exploration of consumer preference,” with a four-fold increase in full agreement when consumer preferences were discussed more completely. Enhancing active consumer participation, particularly by incorporating consumer preferences in the decision making process appears to be an important factor in SDM.

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## Introduction

Shared decision-making (SDM) has been the object of increased interest in mental health care. SDM is defined as “an interactive process in which physicians and patients simultaneously participate in all phases of the decision-making process and together negotiate a treatment to implement” (Charles et al., 2003). Implementation of SDM is consistent with the Institute of Medicine’s call for person-centered care that accounts for the needs, preferences, and satisfaction of people with mental illness (Institute of Medicine, 2006).

Several studies address potential barriers to SDM in psychiatric care. For example, concerns about decisional capabilities (Drake, Cimpean, & Torrey, 2009; Hamann, Mendel, Reiter et al., 2011), providers’ paternalistic views (Hamann, Mendel, Böhne et al., 2011; Young et al., 2008), and time constraints (Torrey & Drake, 2010) have all been identified as possible barriers to SDM in psychiatric care. Some studies also show variations in SDM based on consumer and provider characteristics. For example, Young et al. (2008) found that older providers used less SDM with consumers in depression care. Providers’ clinical experience and available resources have also been found to influence decision making (Bhugra et al., 2011). With regard to consumer characteristics, providers of psychiatric services reported being more likely to use SDM for consumers who were more adherent to treatment and had higher educational levels (Hamann et al., 2009). Trust and confidence in consumers’ own decisional capacities and consumers’ concerns about medications are also related to SDM preference (Hamann, Mendel, Böhne et al., 2011; Hamann, Mendel, Reiter et al., 2011). In addition, racial and ethnic disparities in SDM have been investigated (Alegria et al., 2008; Whitney, McGuire, & McCullough, 2004). Further, in research from somatic medicine, Say et al. (2006) reported that demographics, including age, gender, and socio-economic status, play an important role in medical decision making. For example, consumers who were younger and more educated showed a higher preference for involvement (Thompson, Pitts, & Schwankovsky, 1993), but not consumers who presented with more severe illness (Arora & McHorney, 2000; Say, Murtagh, & Thomson, 2006). Women (Arora & McHorney, 2000) and Caucasians (Murray et al., 2007) appear to want more involvement compared to their counterparts.

In addition, some studies discuss potential variations in SDM in terms of decisional and interactional characteristics. For example, Braddock et al. (1999) and Whitney et al. (2004) argue that as the complexity of the decision increases, the need for SDM becomes greater. Elwyn et al. (2005), however, have argued that all decisions should be shared, regardless of level of complexity. Given the limited length of an office visit (Drake, Cimpean, & Torrey, 2009; Torrey & Drake, 2010), time factors could also affect SDM practice. Further, the importance of consumers’ active participation in medical appointments has been discussed (Alegria et al., 2009; Salyers et al., 2009). For example, with greater consumer involvement in discussion (e.g., initiating discussion about treatment, making a request for medication), providers are more likely to use SDM (Young et al., 2008). Thus, decisional and interactional characteristics may be important factors to consider when examining the degree to which SDM is taking place.

Ultimately SDM potentially reduces decisional conflicts (Fraenkel & McGraw, 2007; Stewart, 1995), resulting in a higher level of agreement between consumer and provider. Engaging the consumer in the decision making process should result in better agreement (Hamann et al., 2008; 2009). Thus, successful SDM, in which the core elements of the decision are discussed thoroughly between consumers and providers, should predict the level of agreement between consumer and provider.

## Study Purpose

Few studies have empirically examined facilitators of SDM in psychiatric care. Moreover, such studies have relied on self-report, which is more prone to bias than observation. As a result, we know very little about how consumer and provider characteristics are associated with shared decision making in actual mental health practice. Even less is known about how interactional factors, in the conversation itself, may influence decision making and agreement. This exploratory study was a secondary analysis of pre-existing audio-recorded psychiatric visit datasets. With the available information, we explored the potential role of consumer characteristics (i.e., age, gender, race, diagnosis), provider characteristics (i.e., gender, provider type, study site), decision characteristics (i.e., complexity), and interactional factors (i.e., length of the visit, level of consumer involvement). We hypothesized that as consumers participate more in an office visit, SDM will be higher. Further, the more thoroughly the core elements of the decision are discussed, the more likely consumers and providers are to reach full agreement about the consumer's treatment. Some of prior work has examined qualitative descriptions of how decisions are made in psychiatric consultations (Bhugra, Easter, Mallaris et al., 2011; Goscha, 2009; Matthias, Salyers, Rollins et al., 2012). Recently, we have adapted a tool to measure shared decision making (Salyers, Matthias, Fukui et al., 2012) and were interested in better understanding what factors were associated with higher scores and level of agreement as rated on this scale.

## Method

### Study Participants

This was a retrospective study of audio-recorded psychiatric visits at three community mental health centers. Data sources used in this study were collected separately for another purpose and included: 1) an observational study of 40 psychiatric visits (4 providers, with 10 consumers each) (Salyers et al., 2009); 2) a baseline assessment in a randomized control trial of CommonGround, an intervention to improve SDM (3 providers and 98 consumers) (Deegan et al., 2008); and 3) an observational study of 48 psychiatric visits with one provider. All audio-recordings were transcribed and checked for accuracy. In total, the transcripts included eight providers and 186 adult consumers of the community support services. Because of technical difficulties with 16 audio-recordings, 170 consumers had audio-recordings available. Forty two (25%) of the 170 transcripts did not contain any clinical decisions (i.e., discussion with an explicit course of action); rather, these were predominately check-in visits concerning the consumer's progress. If there was no explicit conversation to keep treatment the same, or change the course of treatment, elements of SDM were not coded. The remaining 128 transcripts were included in the analyses.

Socio-demographic characteristics of consumers were obtained from their providers at one site. For the two remaining sites, the information was obtained from a statewide Automated Information Management Systems (Kansas Department of Social and Rehabilitation Services, 2005). Consumers' characteristics are shown in Table 1. Five providers were psychiatrists and three were nurse practitioners. Half of the providers were male and half were female. Other providers' characteristics such as age, race, and length of practice experience were not available in the original datasets. Written informed consent approved by

the Institutional Review Boards of both the University of Kansas and Indiana University-Purdue University Indianapolis was obtained from all participants.

### Shared Decision Making Scale

The Shared Decision Making (SDM) Scale, adapted from Braddock's Informed Decision Making Scale (Braddock et al., 1997; 1999; 2008), was used to characterize the decision making process between providers and consumers in psychiatric visits (Salyers et al., 2012). Braddock's coding system has shown high reliability in several studies of decision making with primary care physicians and surgeons (Braddock et al., 1997; 1999; 2008; Ling et al., 2008). The scale consists of nine elements of shared decision making: 1) consumer role in decision making, 2) consumer goal/context of decision, 3) clinical issue or nature of the decision, 4) alternative options, 5) pros and cons of the alternatives, 6) uncertainties associated with the decision, 7) assessing consumer understanding, 8) assessing consumer desire for others' input, and 9) exploration of consumer preference. The thoroughness of the discussion for each of the nine elements was evaluated using three categories (Absent=0, Partial=1, Complete=2). Following Braddock et al.'s (1999) scoring method, items were summed for an overall SDM score ranging from 0 to 18. The initiator of the discussion (Consumer=1, Provider=0) of each element was also identified. We calculated a sum of the scores indicating whether the consumer initiated each element, ranging from 0 to 9 to serve as a proxy for how active a consumer was in the session. Each transcript with a decision was classified by decision complexity (Basic=1, Intermediate=2, Complex=3) based on the extent to which the treatment decision's consequence could affect the consumer's life and the level of medical consensus available. Basic decisions have high medical consensus and pose little risk to the consumer (e.g., timing of medication dose). Complex decisions have uncertain outcomes or high controversy in the literature and may have extensive impact on a consumer (e.g., starting a new prescription of clozapine). Intermediate decisions fell in between in terms of medical consensus and impact on consumer (e.g., starting a new antipsychotic other than clozapine). Given the frequencies observed in this study (basic [n=59, 46%], intermediate [n=67, 52%], and complex [n=2, 2%]), decision complexity was re-categorized into basic [=0] and either intermediate or complex [=1]. The level of final agreement of the decision between consumer and provider was also rated (i.e., full agreement of both parties, passive/reluctant agreement by consumer or provider, disagreement by consumer or provider). We examined full agreement [=1] versus all others—lack of full agreement [=0] in this study. Transcripts were scored by trained raters. After the initial training, five raters divided the transcripts, scoring every fourth transcript in common to maintain reliability throughout the study. Sufficient inter-rater reliability among three raters for the SDM scale was confirmed by the AC1 statistic (.51-.97), which is favored over Kappa statistic for multiple raters and multiple responses because it adjusts for chance agreement and misclassification errors (Gwet, 2010).

### Data Analyses

Our first set of analyses predicted the overall level of SDM (total score). A multilevel linear regression analysis was conducted to examine how length of visit (minutes), decision complexity (basic =0 vs. intermediate/complex =1), and the consumer initiator score predicted the SDM score. Consumer characteristics (i.e., age, gender, race, schizophrenia spectrum) [a level-one unit] and provider characteristics (i.e., provider type [nurse practitioner = 0, MD = 1], gender, study site) [a level-two unit] were also included. SAS PROC MIXED was used for the multilevel linear regression analysis. The second analysis was to predict level of agreement between the provider and consumer. We conducted a multilevel binary logistic regression analysis to examine how the thoroughness of the discussion for each of the nine elements (Absent [=0], Partial [=1], Complete [=2]), length of visit, decision complexity, and the consumer initiator score predicted full agreement with

the decision (Full agreement [=1] vs. Lack of full agreement [=0]). Both consumer and provider characteristics were also included. SAS PROC GLIMIX was used for the multilevel logistic regression analysis. The explained variance for the regression models was calculated using the formula in Snijders and Bosker (1999).

In this study, multilevel modeling was used to account for the clustered data structure where consumers are nested within providers. That is, consumers meeting with the same provider may share similar experiences compared to consumers who are meeting with the other providers. This sample dependency biases estimates of standard errors when examining the effects of providers. Given the nature of current clustered data, multilevel modeling is favored for correcting for the biased standard errors.

## Results

Mean SDM score was 9.7 (SD=3.3) on a scale from 0-18; consumer initiator score was 1.8 (SD=1.5) on a 0-9 scale; and mean length of visit was 16.7 minutes (SD=7.0). Fifty nine participants (46%) had a “basic” decision and 69 (54%) had either an “intermediate or complex” decision. Examples of decisions by their complexity are included in Table 2. Full agreement (both provider and consumer agreed) was achieved in 101 (79%) decisions, while 27 (21%) decisions included some disagreement by either consumer or provider.

Multilevel linear regression analysis revealed that the consumer initiator score ( $\beta=0.767$ ,  $p<.001$ ) and decision complexity ( $\beta=2.467$ ,  $p<.001$ ) were significant factors predicting SDM score (Table 3). That is, greater levels of shared decision making were observed when decisions were more complex and when consumers initiated more of the elements. Together these variables explained 37.6% of the variance in overall SDM score at consumer-level (a level-one unit).

Multilevel logistic regression analysis predicting overall full agreement (Table 4) showed that incorporating consumer preference in discussion is an important factor. The likelihood of full agreement was four times higher when “exploration of consumer preference” ( $\beta=1.379$ ,  $p<.01$ , OR=3.97) was discussed more completely. This was the only significant predictor of level of agreement. This element accounted for 52.5% of the variance in full agreement at consumer-level (a level-one unit). For both of the multilevel models, the variances of random intercepts (in-between level variance) were not significant, indicating the outcomes did not vary across providers.

## Discussion

This is the first study we are aware of that uses actual clinical interactions to examine factors associated with shared decision making in psychiatric visits. Moreover, this is the first study that examines clinical interactions to identify elements of the interaction itself that appear to be conducive to shared decision making and level of agreement in clinical decisions. Overall, the average SDM score was just above the theoretical midpoint, indicating a modest degree of utilization of all elements of shared decision making. Despite not using all the elements of SDM, the majority of decisions had agreement between consumer and provider (79%).

We found that the available demographic characteristics of consumers (i.e., age, gender, race, schizophrenia spectrum) and providers (i.e., provider type [nurse practitioner or MD], gender) were not significantly related to SDM scores. While the role of consumer demographics has been identified as important to medical decision making (Say et al., 2006), these studies often relied on self-report predicting preference for decision making,

rather than actual observed behavior. As others have noted discrepancies between consumers' preferences and actual participation during decision making (Tariman et al., 2010), it may be that demographics are more closely related to preferences than actual behavior. In mental health, some demographics such as low levels of education and minority status may be potential challenges for SDM (Hamann et al., 2009; Alegria et al., 2008). The mental health literature on the association between consumer demographics and stated or observed SDM is sparse. Regarding provider characteristics, Young et al (2008) found that age was significantly related to SDM performance but not other demographics, including race and gender. However, information on providers' age was not available in our study because the original datasets combined for this study were collected for another purpose and did not include the information. Further research is needed on the role of provider and consumer characteristics in shared decision making in mental health contexts.

Our study revealed that decision complexity and consumers' initiation of the discussions (i.e., level of involvement) have more impact on SDM scores than demographic characteristics of the providers and consumers. Further, although SDM has been associated with longer clinic visits (Young et al., 2008), we did not find this relationship. In other analyses (Salyers et al., 2012), we found that controlling for complexity, SDM was not related to length of visit. Complexity as a predictor of SDM is consistent with arguments by Braddock et al. (1999) and Whitney et al. (2004) that decision complexity drives the need for shared decision making. Bhugra et al. (2011) also found that decisions were dependent on the level of risk and uncertainty. That is, more complex decisions should involve more elements of SDM than basic decisions.

We found consumer initiative was associated with greater SDM scores. Consumer initiation was a code that was added to the Braddock scale (Salyers et al., 2012), so we cannot compare our findings directly with prior work on SDM using this scale. However, consumer initiation is consistent with Young et al.'s study (2008), which found that greater consumer involvement in discussion was related to higher SDM observed by the revised Observing Patient Involvement scale. The importance of the consumer's active participation in the decision making process has been emphasized previously and interventions have been designed to increase participation (Alegria et al., 2009; Deegan & Drake, 2006; Salyers et al., 2009). However, it should be noted that some researchers have suggested that active involvement (i.e., insistence of own preferences, doubt about providers' recommendation) could threaten providers, especially when providers feel challenged by consumer's questions and tend towards a paternalistic role (Alegria et al., 2008; Hamann, Mendel, & Bühner et al., 2011). It is likely that both consumers and providers may benefit from coaching on how to effectively communicate preferences and how to effectively incorporate them. In a qualitative study analyzing a subset of the transcripts in the current study, Matthias et al. (2012) found that even though providers frequently initiated a discussion of a decision, they often did ask for the consumer's input. Similarly, Legare et al. (2012) indicated that without providers explicitly asking for consumers' preferences, these preferences may or may not be incorporated. Full integration of SDM will require environments that support both consumers to be active and providers to be receptive to this active role.

In terms of overall agreement between consumers and providers, the only significant predictor was discussion of consumer preference. A thorough discussion of consumer preference increased the likelihood of final agreement by four times when holding other predictors constant. Interestingly, no association was found for other important elements of SDM, including discussions about treatment options (i.e., clinical issue, alternatives, pros and cons, uncertainties, understanding, other's input). However, the results may not be surprising when considering the findings of Woltmann and Whitley (2010), who studied agreement/disagreement between consumers and case managers in decision making. They

revealed that consumers tend to focus on their own decision-making limitations or issues related to the decision itself when they have disagreement. However, when there is agreement, consumers focus on the relationship and affective aspects of decision making rather than on the deliberative process or the contents of the decision (Woltmann & Whitley, 2010). A thorough discussion of consumer's preference may support consumers' sense of autonomy in the decision making process, which may increase the agreement level. Without discussion, providers will not be able to access consumer preferences. Providers need direct assessment since, without it, they can be inaccurate in perceiving the preferences of the consumer (Strull, Lo, & Charles, 1984). This may be particularly important for shared decision making in psychiatric care, given the concerns that psychiatrists often underestimate the consumers' decisional capacity and preference regarding medication (Drake et al, 2009) and that some consumers may not believe that they have the ability to make their own choices (Puschner et al. 2010).

Some limitations of this study need to be acknowledged. First, the study took place at only three agencies, using a convenience sample at two of the sites. This limits the generalizability of the study results. Second, this was a cross-sectional study that lacks temporal information, including the length of relationship and the consequences of observed decisions. The association between consumer characteristics and SDM may be mediated by the relationship between the consumer and provider (Arora & McHorney, 2000). Longitudinal studies will be needed to examine the causality among variables as well as the consequential actions the consumers may take after the final decision. Third, because we analyzed data from previous studies, we were limited in our ability to examine provider and consumer characteristics. We obtained satisfactory amounts of explained variances in our predictive models for an initial study, but other important variables could be missing. Previous work on decision making in mental health care suggests, for example, that older providers might be more likely to be paternalistic (Hamann et al., 2009; Young et al., 2008). Fourth, we lacked power to find provider-level differences. For multilevel modeling, the effective sample size for the between-level effect is only eight (8 providers), which leads to a lack of power to detect a nonzero effect in between-level units. Fifth, the majority (79% vs. 21%) of decisions were characterized by "full agreement," based on the information available in the transcript. The imbalance in cell sizes may have affected our ability to detect significant predictors. Finally, although we used trained raters, the same raters coded many of the variables at the same time (complexity of decision, elements of SDM, and overall agreement). This could lead to inflation of correlations due to common method variance. Despite the limitations, however, our study reinforced that enhancing active consumer participation, particularly by incorporating consumer preferences in the decision making process appears to be an important factor in mental health SDM.

## Conclusions

This study aimed to establish empirical evidence demonstrating factors facilitating SDM and the level of agreement between consumers and providers in psychiatric care. Our findings revealed that decision complexity predicted a higher level of SDM. In addition, consumer involvement enhances SDM and overall agreement. Given the inevitable power structure that exists between provider and consumer, the provider's expectation and encouragement of the consumer's involvement should enhance SDM. Further study will be needed to build more evidence in this emerging area, incorporating longitudinal and experimental designs.

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**Table 1**

Descriptive information on consumers' characteristics and shared decision making (N=128)

	<b>n</b>	<b>%</b>
Age	<i>M</i> =43.4	<i>SD</i> =10.63
Gender		
Male	63	49.2
Female	65	50.8
Race		
White / Caucasian	65	51.2
African American	56	44.1
Other	6	4.7
Diagnosis		
Schizophrenia	72	56.3
Bipolar	18	14.1
Major depression	30	23.4
Other	8	6.3
Decision Complexity		
Basic	59	46.1
Intermediate	67	52.3
Complex	2	1.6
Agreement Level		
Provider disagree / reluctant agree	8	6.3
Full agreement (both agree)	101	78.9
Consumer reluctant agree	19	14.8
Length of visit	<i>M</i> =16.75	<i>SD</i> =6.96
SDM score	<i>M</i> =9.73	<i>SD</i> =3.27

**Table 2**

## Decision examples by the complexity

<b>Topic of Decision</b>	<b>Basic</b>	<b>Intermediate/Complex</b>
Stopped a medication	n/a	Stop Medication B because consumer is taking Medication A that also helps sleep
Added a medication	Add Vitamin E	Decided to use Medication C for weight loss
Dosage change	Decrease medication A (doing well and has decreased in past)	Increase Medication A for hallucinations
Decided not to change medication	Continue medications as prescribed	Start another medication, and keep this medication the same
Non-medication alternative	Continue to go to church to make more social connections and leave medications the same	Discussion of different ways to address high cholesterol
Change time or change way of taking currently prescribed medication or restart previous medication	Take medication one hour later because of sleepiness	Deciding whether to restart previously described medications and if so, which ones

Note: More than one topic of decision may have appeared in the same discussion due to their highly related nature (e.g., adding a new medication and decreasing one medication at the same time to address a symptom), so the final coding of the decision complexity was based on the overall discussion.

**Table 3**

Multilevel linear regression analysis predicting SDM score

	$\beta$	SE	z	p
<u>Level-one predictors</u>				
Age	-0.007	0.022	-0.330	0.743
Gender	0.118	0.476	0.250	0.805
White	0.013	0.517	0.030	0.980
Schizophrenia spectrum	0.610	0.512	1.190	0.237
Consumer initiator score	0.767	0.159	4.840	<.001***
Length of visit	0.055	0.043	1.280	0.204
Decision complexity	2.467	0.466	5.290	<.001***
<u>Level-two predictors</u>				
MD	-2.762	1.910	-1.450	0.151
Male Doc	1.838	1.755	1.050	0.297
Site 1 (dummy1)	0.866	1.510	0.570	0.568
Site 2 (dummy2)	2.499	1.617	1.550	0.125
Intercept	4.545	2.073	2.190	0.116
Intercept variance	1.002	1.490	0.670	0.251

\*\*\*  
p<.001

**Table 4**

Multilevel binary logistic regression analysis predicting full agreement

	$\beta$	SE	t	p	OR
<u>Level-one predictors</u>					
<i>Demographics</i>					
Age	0.022	0.031	0.720	0.474	1.023
Gender	0.552	0.697	0.790	0.431	1.736
White	0.851	0.765	1.110	0.269	2.342
Schizophrenia spectrum	-0.434	0.750	-0.580	0.564	0.648
<i>Decision Characteristic and Interactional Factors</i>					
Decision complexity	-1.251	0.788	-1.590	0.115	0.286
Lengths of visit	-0.040	0.062	-0.650	0.516	0.960
Consumer initiator score	0.362	0.236	1.540	0.127	1.437
<i>Thoroughness of discussion in 9 elements</i>					
Consumer's role	-0.624	0.519	-1.200	0.232	0.536
Goal / Context	0.525	0.910	0.580	0.565	1.691
Clinical issue	-0.887	0.588	-1.510	0.134	0.412
Alternatives	-0.719	0.708	-1.020	0.312	0.487
Pros and cons	-0.652	0.549	-1.190	0.238	0.521
Uncertainties	0.640	0.484	1.320	0.189	1.897
Understanding	0.032	0.561	0.060	0.955	1.032
Other's input	-0.924	0.587	-1.570	0.118	0.400
Preference	1.379	0.480	2.870	<.01**	3.969
<u>Level-two predictors</u>					
MD	-3.673	1.949	-1.890	0.102	0.025
Male Doc	1.856	1.747	1.060	0.322	6.400
Site 1 (dummy 1)	0.209	1.425	0.150	0.892	1.232
Site 2 (dummy 2)	1.188	1.647	0.720	0.512	3.279
Intercept	1.651	3.165	0.520	0.605	-
Intercept variance	0.497	1.118	0.445	0.656	-

\*\*  
p<.01