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Design and Implementation of the Domestic Violence Services in Rural Clinics Intervention

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The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention

Introduction

Since the 1980s, health professionals have increasingly been interested in understanding the health consequences of intimate partner violence (IPV)(1-3). In addition, health care communities are recognizing the need to identify ways to respond more effectively to the needs of abused women. Numerous studies have indicated that 10%-55% of women obtaining care in general practice settings have experienced some form of

IPV either in a current relationship or during their lifetime (4-8). In addition to the physical injuries, disability, and death that can be associated with IPV, both women who have been victimized by an intimate partner and children raised in violent households are more likely to experience a wide array of chronic physical and mental health conditions, including frequent headaches, gastrointestinal problems, depression, anxiety, sleep problems, and post traumatic stress disorder (PTSD)(9-15).

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Healthy People 2010 (16) is a prevention agenda for the nation designed to identify the most significant preventable threats to health in the United States. Developed by the Office of Disease Prevention and Health Promotion of the U.S. Department of Health and Human Services, Healthy People 2010 has identified ten Leading Health Indicators (LHIs) that measure the health and well-being of the nation for the decade. These indicators include physical activity, overweight and obesity, tobacco use, substance abuse, responsible sexual behavior, mental health, injury and violence, environmental quality, immunization, and access to health care. Intimate partner violence (IPV) has been associated with eight of ten of the LHIs identified in Healthy People 2010. IPV is a leading determinant of health that must be addressed to advance the national prevention agenda for the 21st century.

Interventions to prevent IPV and its negative consequences would confer substantial public health benefit, including the prevention of future injuries and illness. In an effort to realize this health benefit, some health care providers around the country have implemented procedures to screen patients for abuse, and many organizations support routine screening for IPV (17-24). However, the value of screening has recently been questioned because of insufficient evidence regarding the benefit-to-harm ratio of screening tests (25).

Existing literature suggests that assessing IPV may be beneficial rather than harmful. Two prospective intervention trials involving prenatal clinics reported no evidence that assessment and intervention had detrimental effects; rather, both found that assessment and referral alone were as effective in reducing new episodes of physical assault over time as assessment and intervention (26,27). Another study found that an intervention consisting of six telephone calls to women

screening positive for IPV in which safety behaviors were discussed over an eight-week period increased women's safety behaviors at three, six, 12, and 18 months compared with women receiving the IPV care routinely provided by the local district attorney's office (28). The utility of this intervention within the context of a clinical assessment is unknown because the trial was not clinic based; however, the results suggest that safety-behavior training may be effective. Finally, additional evidence has been demonstrated in a large trial in which violence was assessed in women attending public health clinics using a two-question, two-minute questionnaire. Those identified as abused were then assigned to one of two interventions: case management by a nurse to help the woman individually problem solve issues related to IPV or provision of an information card; both interventions resulted in a decrease in physical assaults and depressive symptoms in women over eighteen months. No harmful effects of the assessment or intervention were noted (29). All of these studies have been criticized because they have not included control groups; therefore, additional randomized clinical trials using clinic-based assessments and interventions and control groups are needed to determine the potential positive or negative impact on IPV.

Further investigation is needed to determine what type(s) of IPV should be assessed (e.g. physical, sexual, psychological violence), which assessment tools should be used, and what time frame an assessment should cover (e.g. current violence, recent, or lifetime). Each type of partner violence is associated with negative consequences; both physical and psychological abuse have been shown to result in the same negative outcomes (1,5). For successful IPV assessment, the proportion of women that report physical assault, battering, and psychological abuse (the most common forms of partner abuse) must be elucidated, as well as the

potential for overlap between these constructs. In an effort to make evaluations as brief as possible, several rapid assessment tools have been developed and validated against existing instruments (7,30-35). In reviewing the range of instruments, practitioners need to consider the intent of screening. If the focus of interventions is to reduce immediate harm, the time frame for screening should be current abuse, whereas instruments to address long-term health consequences should assess lifetime exposure. Additional research in this area will facilitate the development of a brief but comprehensive assessment tool that captures all types of abuse.

Research supports the notion that women are willing to talk with health care providers about IPV and realize the potential benefits of doing so (36). Specifically, 83% of both abused and non-abused women have reported that it would be easier for abused women to obtain help if health care providers routinely conducted violence assessments (36). Despite women's willingness to disclose abuse when asked, several studies have identified missed opportunities for potentially life saving interventions. Research indicates that two thirds of women who are victims of homicide by an intimate partner sought medical care in the year prior to their murder (37), and that 50% of homicide victims were not identified or appropriately referred as IPV victims during visits to emergency departments prior to their murders (38). Additionally, in one study (39), only 17% of women who reported partner violence in personal interviews with researchers had any indication of violence noted in their medical record. One potential reason that clinicians do not assess IPV is the lack of effective, clinic-based services for women who are IPV positive. Assessing IPV and corresponding interventions in health care settings might help prevent these missed opportunities.

Assessment and referral for IPV may be particularly challenging in rural settings because of increased isolation and limited access to resources. However, the incidence and prevalence of IPV among women living in different residential settings (i.e., rural, urban, and suburban) has not been clearly elucidated. Evidence from some studies indicates that the impact of partner violence might be greater in rural areas (13,40,41). In one study conducted in 2001, homicide rates among intimate partners were found to be higher in southern states (42), which are typically rural, although this rate might also be reflective of the study population's race; a greater proportion of the southern population is African American, a population along with other minority groups that has higher homicide rates than those observed in white populations (42). An analysis using FBI domestic state homicide rates for 1998-2000, however, found that rural residence was significantly associated with female domestic homicide after adjusting for the percentage of minority populations in each state ($p=0.01$; R^2 value=24.1%). Using data obtained from the National Family Survey data (43), which employed a conflict tactic scale to determine levels of abuse for 1,310 women, researchers determined the 12-month estimate for severe physical violence to be 3.87% (44); in addition, these data revealed rates of physical violence to be highest among women living in rural, non-farm residences. In contrast, other researchers (13) have reported that the 12-month prevalence of severe physical partner violence among women who sought care in emergency departments or clinics in the Midwest during a two-week interval in 2002 was highest among urban women (10.2%; $N=646$), followed by rural women (3.8%; $N=215$) and suburban women (1.0%; $N=406$). Another study conducted in 2001 examined violence prevalence among 1,682 women who were seeking services in either a Women, Infant, Children site or a clinic in rural

west-central Minnesota (41); the 12-month prevalence of physical violence in this population was 6.5%. Although it is not known whether partner violence rates are higher in rural compared with urban settings, women living in rural areas likely face more challenges in receiving intervention for IPV than their urban counterparts.

Conceptual Model for Study

The research discussed in this report was guided by a conceptual model that proposes the intervening mechanisms through which IPV impacts health. The set of potential causal relationships that link IPV interventions to improvements in women's health also are identified in this model (Figure 1). Prior research has indicated that physical assault, psychological abuse, and battering negatively impact both physical and psychological health (45,46). The health outcomes assessed in our study (as indicated in the conceptual model) include a) health-related quality of life (47-50), b) mental health (9,35), c) depression (47,51), d) anxiety (47,51), e) PTSD (49,51,52), and f) number of health care visits (13,35,53). The model also proposes that the relationship between health-status outcomes and abuse is mediated by several factors including higher stress (50,53), lower perceived social support (53,54) lower perceived control (53,55), and greater use of certain negative coping behaviors (e.g., alcohol use (50,56)) and suicidal ideation (47,57). Additionally, the model suggests that the relationship between IPV and health is mediated by several behavioral factors, including help-seeking (58), safety planning (26), and self-care (13,55). These factors may also have a negative effect on abused women's health independent of her exposure to abuse. We proposed that the interventions would result in improvements in the intermediate endpoints (e.g., social support, perceived control,

and perceived stress) which, in turn, would lead to improvements in behavioral outcomes (i.e., help seeking, safety planning, and self-care). In addition, we proposed that these changes would improve women's health status independent of changes in the level of IPV.

The health care intervention discussed in this report focused on victims of IPV rather than perpetrators; therefore, no changes in perpetrator behavior were expected to occur. In accordance, a reduction in the level of violence was not assessed as an outcome. Rather, we proposed the use of intermediate variables in the conceptual model as outcomes for our study (i.e., social support, perceived control, and perceived stress). We hypothesized that these interventions would address and create change in areas of women's lives that are within their spheres of control, ultimately increasing safety and improving health among female victims of IPV.

Research Questions

This study was designed to achieve several objectives. One objective was to enable the frequency of both current and recent (i.e., within the past five years) IPV (including physical, sexual, and battering) to be determined among women receiving primary care services in a low income, ethnically diverse, rural health care clinic setting. Few IPV assessment and intervention studies have been conducted in an ethnically diverse, rural setting. As recommended by the Centers for Disease Control and Prevention, we defined IPV to include physical violence, sexual violence, the threat of physical or sexual violence, and psychological/emotional abuse (59); in this report, the term "abuse" was used to describe experiencing any of these forms of IPV. We differed from CDC's recommendation in one aspect, because in

our definition of IPV, we included psychological battering for women not currently experiencing physical or sexual violence.

The second research aim involved evaluating the efficacy of two clinic-based interventions; these interventions were evaluated alone and in combination with one another. One intervention involved the presence of an on-site domestic violence specialist who immediately provided services for women positively screened for IPV. The second intervention was comprised of a seven-session “empowerment-focused patient education intervention,” which was implemented by trained on-site counselors. This intervention focused on empowering women to make informed decisions about their relationships and their health. A cost-outcome analysis was also conducted group comparing women receiving interventions relative to those in the control group.

The study also aimed to examine the pathways by which changes in intermediate endpoints (i.e., help seeking, safety planning, and self-care) impact short-term outcomes (e.g., chronic perceived stress, social support, and self-care) and long-term physical and mental health outcomes. Understanding the mechanisms by which IPV impacts health, which is the primary outcome for this intervention, should lead to further refinements of the interventions and implementation strategies that will maximize their efficiency.

Although the interventions were developed to reflect the same conceptual model, the pathway for improving women's health may have differed. The on-site IPV services intervention was designed to directly affect help-seeking behaviors by improving linkages between abused women and IPV service providers. Because women received these messages during their first encounter with service providers, this intervention may also have increased safety planning and self-care. Women

who seek help from services or follow a safety plan may feel more in control of their lives, perceive less stress, and in turn, have reduced anxiety or depression levels and increased quality of life scores (i.e., improved health outcomes).

In contrast to the on-site IPV services intervention, the empowerment intervention sought to impact self-care, social support, perceived stress, and perceived control. Women who recognize a link between IPV and health may focus on garnering support and resources from friends, agencies, and health care providers to help them cope with and address their abuse.

Methods

Setting and Population

Study participants were women who sought care at participating rural health care clinics in South Carolina's Pee Dee Region. The Pee Dee Region is comprised of the following counties: Chesterfield, Darlington, Dillon, Florence, Marion, Marlboro, and Williamsburg. The region is primarily rural and has high rates of poverty, infant mortality, poor educational achievement, and IPV (60). All participating clinics served women of low socioeconomic status, a population known to be at increased risk of domestic violence.

For our study, women 18 years of age or older who sought care at the clinics from April 2002 through August 2005 were offered IPV assessment each year as part of the clinic's standard assessment procedure. Approximately 55% of participants were African American, and the remaining 45% were white, non-Hispanic women. IPV assessment was limited to females because rates of victimization from partner violence are approximately threefold higher in women than men in South Carolina (61). Furthermore, assessment

of men for IPV would have required additional resources that were not available for this project; because no community-based services were available for men experiencing IPV, it would have been unethical to assess for a problem for which no help was available.

IPV Assessment Procedures

Trained clinic nursing staff identified eligible women, described the study, and explained the consent forms. Women who consented to the IPV assessment (Table 1) were given the option to have their assessment placed in their medical chart. Women were also offered a copy of the consent form and assessment; however, nursing staff recommended that a woman take the consent form only if she was sure it was safe to do so. Although we did not assess sexual or physical assault by someone other than an intimate partner in this study, reports of this type of violence to clinic and project staff resulted in a referral to the Pee Dee Coalition Against Domestic and Sexual Assault (PDC), which provides services and refers women to other medical or legal services as needed. All aspects of the study, including the consenting process, were explained and the IPV assessment administered in a private examination room before the clinical exam was conducted. Only the nursing staff member and the patient were allowed in the room. If a partner refused to leave the examining room when asked, the nursing staff member did not offer the assessment; instead, a notation was made that the IPV intervention should be offered during the next visit. Clinic nursing staff administered the questionnaire to eligible and consenting women, recorded the women's responses, and scored forms once assessments were complete.

IPV Assessment

During the IPV assessment, nurses first asked women to think about their current male partner, if relevant, or their most recent male partner. Partner was defined as "someone you have been married to, dated, or had a sexual relationship with." Women were then asked a series of questions assessing battering and physical/sexual assault (Table 1). Finally, women were asked about emotional abuse and physical abuse by any partner in the past 5 years. (See Table 1.)

We used the Women's Experience with Battering Scale (WEB) to assess battering. The WEB Scale has good construct validity, accurately discriminates battered from non-battered women, and shows strong internal consistency (35,62,63), (Cronbach's alpha = 0.96 in this intervention sample). The WEB Scale measures battering by operationalizing women's psychological vulnerability and their perceptions of a) susceptibility to physical and psychological danger and b) loss of power and control in a relationship with a male partner. We modified the WEB Scale for this study by simplifying the six-point Likert-scale response options to two dichotomous responses (agree or disagree) for 10 statements (Table 1). A validation analysis for this revision of the WEB indicated that this dichotomous response option ("agree with two or more of 10 statements") has a sensitivity of 79.8%, a specificity of 99.4%, and a positive predictive value of 96.6% when compared with the full scale of response options. While the WEB was designed to be self-administered, we chose to have the nurses read the assessment to each participant because of the low level at which some of the older and minority participants could read.

Table 1. Intimate partner violence (IPV) assessment items used in this domestic violence intervention project in rural clinics

The following questions (1–12) are asked about the woman’s current or most recent partner. * (Note: Following 10 items are modified from the Women’s Experience with Battering [WEB] Scale.)	Agree	Disagree
1. Your partner makes you feel unsafe even in your own home.	1	0
2. You feel ashamed of the things your partner does to you.	1	0
3. You try not to rock the boat because you are afraid of what your partner might do.	1	0
4. You feel like you are programmed to react a certain way to your partner.	1	0
5. You feel like your partner keeps you prisoner.	1	0
6. Your partner makes you feel like you have no control over your life, no power, no protection.	1	0
7. You hide the truth from others because you are afraid not to.	1	0
8. You feel owned and controlled by your partner.	1	0
9. Your partner can scare you without laying a hand on you.	1	0
10. Your partner has a look that goes straight through you and terrifies you.	1	0
Total Web Score (Add above scores. Circle score if 2 or more [positive].)		
	Yes	No
11. Is (was) this partner physically violent toward you? By violent I mean does (did) he punch, kick, hit, shove, slap, choke, or physically attack you in other ways that could result in an injury. It also means being made to do sexual acts when you don’t want to.	1	0
12. Do (Did) you feel that violence or abuse is (was) a problem in your relationship with this partner? **	1	0
The following questions (13–14) are asked about any other partner in the past five years.		
13. Has any other partner, in the past five years, made you feel scared without laying a hand on you, ashamed of the things he does to you, made you feel like you have to react in a certain way to him?	1	0
14. Has any other partner, in the past five years, been physically violent toward you? By violent I mean did he punch, kick, hit, shove, slap, choke, or physically attack you in other ways that could result in an injury. It also means being made to do sexual acts when you don’t want to.	1	0

* The following questions were used to identify a current or most recent partner. “Now I will ask you some questions about your [current] partner. A partner is someone you have been married to, dated, or had a sexual relationship with. Are you in a relationship now with a partner that has lasted at least three months?”. If the response was yes, the woman answers questions 1–12 for the current partner. If the answer is no, the following question is asked: “Have you had a sexual relationship anytime during the past five years that has lasted for at least three months?” If the answer is yes, then the woman answers questions 1–12 for the most recent partner she had in the past five years. If the woman answers no to both questions, she is ineligible for the IPV assessment.

** This question was not used to assess IPV.

One question, which was obtained from CDC's Behavioral Risk Factor Surveillance System (BRFSS), was used to assess both physically and sexually violent acts by a current or most recent partner and for any partner in the past five years. The question was: "Has any partner been physically violent toward you? By violent, I mean did he punch, kick, hit, shove, slap, choke or physically attack you in other ways that could result in an injury. It also means being made to do sexual acts when you don't want to."

For purposes of the intervention, the results of each woman's IPV assessment were coded as either positive or negative for abuse. Women who screened positive for any form of IPV in either a current or past relationship (i.e., within the last 5 years) were referred for intervention. To examine the prevalence and overlap between physical abuse and battering, women who scored positive on the WEB but negative on the BRFSS question regarding physical assault were classified as having been psychologically battered. Women who either scored positive on the BRFSS question alone or scored positive on both assessments were classified as having been physically assaulted.

Referral for Intervention

Project staff trained all nursing staff in participating health care clinics prior to implementation of the IPV assessment. This training included general education on IPV, instruction on how to conduct and score the assessment tool, and instruction regarding how to make referrals for women who are IPV positive. Training employed skill-building, role-playing, and scripting techniques to facilitate the development of skills needed for conducting IPV assessment and ensuring supportive response to disclosure of abuse. These skills were targeted because although health care practitioners often have adequate knowledge

about IPV, they often lack the skills to ask about IPV or to respond effectively to a positive finding (64).

Intervention Study Design

The current study employed a quasi-experimental design to evaluate the efficacy of the two interventions. The two different intervention strategies are being evaluated in a (2 X 2) factorial design resulting in four combinations of interventions: a) IPV assessment only with the "usual care" intervention, b) on-site IPV services intervention only, c) empowerment intervention only, and d) both on-site IPV services and empowerment interventions. Intervention assignment was done at the clinic level rather than the individual level. Participating clinics within the Pee Dee Region were allocated into the four treatment conditions based on their relative size and patient volume. Clinics added to the study after this initial random assignment were assigned to interventions on the basis of sample size considerations. Follow-up activities for the study are currently being conducted.

Description of the Interventions

Usual Care

In the "usual care" (or comparison) intervention, IPV assessment was conducted in the same manner that it was for the two study interventions. Women who reported current or recent IPV were given a referral card to the Pee Dee Coalition (PDC), the partner community-based service provider in the region. Specifically, women were given the business card of their health care provider, which listed the PDC hotline number on the reverse side.

On-site IPV Services Intervention

In clinics assigned to the on-site IPV services intervention, all women who were assessed as IPV positive were encouraged by the nurse to meet with an on-site IPV specialist immediately after their appointment. Women screening positive who had only limited time for their visits were encouraged to meet briefly with the IPV specialist to make an appointment for a subsequent visit. The IPV specialist was available during clinic hours to provide danger assessment, safety planning, education, support, and referral/facilitated linkage for women who reported current or recent past domestic violence. To protect confidentiality, abused women did not pass through any public areas (e.g., the waiting room) on the way to the IPV specialist's office. Furthermore, the nurse introduced the patient to the IPV specialist by first name only.

The on-site IPV specialist intervention was designed to be flexible depending on the amount of time that a woman had to spend with the IPV specialist and the results of the abuse/danger assessment. Regardless of the amount of time each woman could dedicate, she was encouraged to continue services at future clinic visits or as needed by appointment or walk-in. The IPV specialists reserved time each day to provide such ongoing services to returning clients; these visits took place during hours that the clinic was not seeing patients for routine care. The IPV specialist established rapport with each woman while assessing the nature of the IPV and affirming her need for support. Specialists then provided education about the dynamics of abuse, formulated a safety plan, and stressed the importance of ongoing support and services in the community through PDC. This extended session lasted up to 90 minutes if the woman was willing and her schedule permitted. Near the end of the session, the specialist attempted to make a direct, facili-

tated linkage to the ongoing, community-based services of PDC. This linkage effort was tailored to the needs of the individual woman. It consisted of contacting a group facilitator at PDC via telephone in the woman's presence (with permission) and making introductions. Each woman was also encouraged to attend a community support group conducted by the IPV specialists and was also informed of other community-based services provided by the Pee Dee Coalition, including emergency shelter services, Alternative to Violence services for the offender/partner, children's services for children exposed to IPV, and legal assistance. The IPV specialist also offered referrals to other community agencies in accordance with the woman's needs.

Empowerment-Focused Patient Education Intervention

Clinical counselors (i.e., licensed social workers or psychologists on staff at the clinics) conducted the empowerment intervention. Per the conceptual model described earlier in this report, this intervention was designed to improve abused women's health by enhancing their social support, coping mechanisms, perceived control, help-seeking behaviors, and self-care practices. This patient-education intervention was based on a patient-centered decision making model that empowers individuals to make decisions that bring about changes in their personal behavior and social environment. This approach has been used to develop other patient education interventions for chronic disease (65). It was chosen for this research effort because our empowerment intervention aimed to provide women with the skills they would need to make informed decisions about life circumstances that they can control. It was hypothesized that through the receipt of the empowerment intervention, battered women would become their own "daily caregivers" and develop their own "personal prevention plans" (66).

Table 2. The seven sessions of the empowerment-focused patient education intervention

	Topic	Purpose and activities
1	Assessing experience with abuse	<ul style="list-style-type: none"> • Increase her awareness of the dynamics of abuse relationship. • Reflect on her own experience to better understand how she is being abused. • Identify steps she can take to be safer.
2	Impact of abuse	<ul style="list-style-type: none"> • Increase her awareness of how women experience and are affected by abuse using the Assess Women’s Experiences with Battered Framework: perceived threat, managing, altered identify, yearning, entrapment, and disempowerment. • Reflect on her own experience to better understand how she is affected. • Identify steps she can take to start to reduce the negative impact.
3	Selfcare and wellness	<ul style="list-style-type: none"> • Increase her awareness of the different aspects of health and wellness (i.e., spiritual, intellectual, emotional, social, and physical) and how they can be negatively affected by abuse. • Reflect on how the abuse she is experiencing may be affecting her health and wellness. • Identify steps she can take to improve her health and well-being.
4	Decision-making	<ul style="list-style-type: none"> • Increase her awareness of the decisions and choices she makes every day and the impact they have on her and her children. • Reflect on her own decisions and whether they are increasing her strength, security, and independence. • Identify her options and choices for decisions she is making/wants to make and how each might affect her strength, security, and independence.
5	Messages we receive	<ul style="list-style-type: none"> • Increase her awareness of the messages she is getting from others about what she should do. • Reflect on how these messages influence whether she makes choices that increase or decrease her strength, security, and independence. • Identify people she can listen to who can really help her make her best decisions.
6	Coping	<ul style="list-style-type: none"> • Increase her awareness of the many different ways that women can cope with the abuse they are experiencing. • Reflect on the ways she has coped in the past and how helpful these methods have been for her. • Identify new ways of coping that may be more helpful to her.
7	Social support	<ul style="list-style-type: none"> • Increase her awareness of the different types of social support and the role that support can play in her health and ability to make her best decisions. • Reflect on the types of social support she has and has not received. • Identify the types of support she needs and ways of receiving it.

This intervention was designed to be delivered in seven sessions. The goals were to help women assess and evaluate a) their personal experience with abuse; b) the impact of abuse; c) self-care and wellness behaviors and strategies; d) decision-making behavior; e) the messages they receive from others that affect decision-making; f) their coping strategies; and g) their social support. Within each session, women engaged in a) reflection of their personal situation; b) assessment of how the abuse is affecting them; c) assessment of their options; d) identification of choices they could make to improve their safety and self-care; and e) decision making and goal-setting.

Each session included a set of worksheets that the IPV victims and their counselors reviewed and completed together. All clinicians were trained by study staff to facilitate interactive and patient-directed sessions. The content for these interventions was derived from qualitative data obtained from a previous study of battered women.

Evaluation Plan

To evaluate the impact of the interventions on women's health, help-seeking behaviors, and subsequent abuse, all women who were assessed as IPV positive were invited into a cohort study designed to assess help-seeking behaviors, safety planning, self-care practices, and other variables conceptualized as mediators or moderators of the efficacy of the intervention (Figure 1). Because all women who were assessed as being IPV positive (including those in the comparison groups who were given referrals for care) were invited into the cohort study, exposure to comparison interventions will also eventually be assessed.

After assessment, all IPV-positive women were asked for permission to be contacted at a later time regarding participation in a follow-up

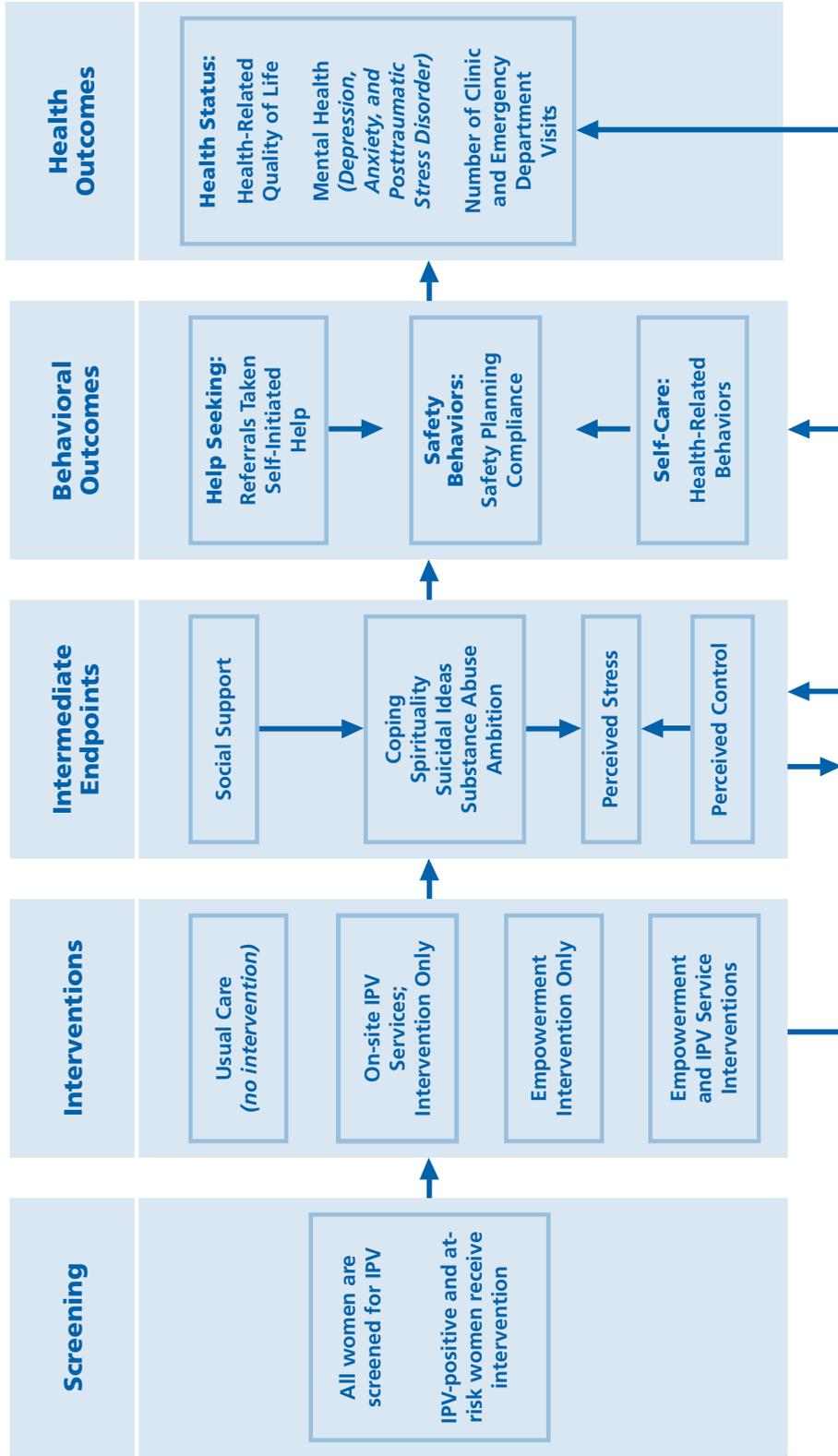
study. Women were told that the follow-up study involved being interviewed, that they would be reimbursed for their time, and that they could decide later not to participate. Women were asked to provide phone numbers and contact information for a safe way to contact them. Within one week of IPV assessment, trained staff from the PDC contacted consenting women to invite them to participate in the follow-up study. This contact was made primarily by phone using one of the "safe" phone numbers provided at the time of the assessment. Informed consent was obtained via telephone from each woman after PDC staff explained the procedures, risks, and benefits to the follow-up study. Consenting women were given the option of completing the interview by phone or in-person.

The follow-up cohort study is currently underway. It consists of four interviews every six months for a maximum of 24 months. Participants are compensated for their time in completing the interviews; a \$20 money order is issued for the first interview (average time to complete is 45 minutes), and \$10 for each additional interview (average time to complete is 20 minutes).

Summary of Planned Analysis

The first set of research questions concerning baseline IPV assessment rates by type and timing will be assessed using de-identified IPV assessment data. Estimates will be made regarding the number of women eligible for assessment, the number of women for whom assessment was attempted, and the proportion of women with positive assessment results. The second research question addresses the effectiveness of the two interventions, separately and in combination, relative to the "usual care" intervention (i.e., assessment and referral card only). The primary outcome will be the physical health of the woman; we also

Figure 1: Conceptual model of intimate partner violence (IPV) assessment and interventions: impact on intermediate, behavioral, and health outcomes



* Intermediate endpoints are assessed as outcomes for the purposes of this intervention

hypothesize several intermediate and behavioral endpoints (Figure 1), including the frequency and type of help seeking, safety planning, and continued violence. Intermediate or mediating factors include social support, coping, and perceived control. Data from the prospective cohort study of IPV-positive women will be used to evaluate the interventions using multivariate time-dependent linear and logistic regression. Because mediating factors are proposed in our conceptual model, we will also use structural equation modeling to test the conceptual model with baseline data and to evaluate the model with time-dependent intermediate, behavioral, and health-outcome data from the IPV cohort. Finally, the cost of the interventions will be estimated to understand the cost relative to improvement in health care outcomes.

Lessons Learned

Implementing IPV screening for women 18 years of age or older in rural primary-care clinics with no history of routine screening for IPV was challenging. Initially, project faculty met with clinic staff to introduce the project and to train nursing personnel to administer the screening. The project manager continued to meet with clinic staff on a regular basis to encourage comprehensive screening and referral according to the clinic's assigned treatment group. As anticipated, project staff encountered the barriers of time pressure and staff resistance to implementation. Making regular contact with clinic staff and encouraging feedback on screening coverage helped to achieve high screening rates (>75%). These efforts inspired clinic staff to outperform other participating clinics. Patient resistance to the screening was not encountered in any clinic. Although eligible patients in the participating clinics had to give written consent for an assessment that was explained as part of a research project, most (>75%) were willing to cooperate. Among women

providing reasons for not participating, most reported that they did not have time to complete the screening. In future interventions, screening must be more time efficient and convenient for participants. Because this project was research and required consent this process increased the time required for screening.

Conclusion

This research will add to existing IPV knowledge by assessing the impact of novel interventions for abused women in their own health care clinics. To our knowledge, no studies have used prospective data from IPV-positive women to assess the impact of interventions on intermediate, behavioral, and health outcomes. This research is important, because it helps elucidate the mechanism by which the interventions may impact health outcomes. Finally, this study will add to the growing body of literature evaluating the efficacy of clinic-based IPV interventions.

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