The objective of this study was to develop and test measures for assessing risk of violence toward staff during home visits. Home visiting health workers from public and private home visiting programs in a Mid-Atlantic state (n = 130) were surveyed to assess exposure to risky home visits, verbal and physical violence, and workplace violence safety climate. Two measures demonstrated evidence of reliability and validity moving the safety research closer to developing tools and processes for protecting home care clinicians.

Assessing Risk for Violence on Home Health Visits

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Objective of the Study

The objective of this study was to develop and test three measures for assessing risk of violence toward staff during home visits. The measures assess home visit risk, staff safety decisions, and employer safety climate for violence prevention. The overarching goal of the research is to develop reliable and valid measures specific to home care, thus improving the quality of safety research in this field. Ultimately, such measures will hasten translation of the research findings into processes to protect home care staff from violence.

Background

Violence directed toward healthcare providers is recognized as a significant safety hazard in the healthcare and social services work environments (Bureau of Labor Statistics, 2008; CDC, and National Institute for Occupational Safety and Health, 2002, 2006; Occupational Safety and Health Administration, 2004; University of Iowa Injury Prevention Research Center, 2001; Washington State Department of Labor and Industries, 2007). Exposure to violence on the job can result in multiple outcomes to staff, the most severe of which is homicide (Janicak, 2003), but more often nonfatal injuries with and without lost work time (Bensley et al., 1993; Foley, 2002; McGovern et al., 2000), stress (Rogers & Kelloway, 1997), traumatic stress disorder (Matthews, 1998), anxiety, fear of future violence, reduced job satisfaction, changing jobs (Canton et al., 2009; Holtz, 2009; Rogers & Kelloway; Walsh & Clark, 2003), and depression (Geiger-Brown et al., 2007). Traditional safety services employed in institutional workplaces, which typically include security guards, controlled entry practices, video surveillance, and panic buttons or special communication devices (Peek-Asa et al., 2007, 2009), cannot be implemented in home care because the home environment is not under the direct control of the employer as it is in other healthcare settings.

Home care includes patient care-related risks similar to hospital and institutional settings, such as clients with mental illness and co-occurring substance abuse disorder, a history of violence, cognitive impairments, compounded by working alone, and exposure to weapons (Fazzone et al., 2000; Fitzwater & Gates, 2000; Murphy, 2004; Powell & Lloyd, 2001). Home care workers also encounter safety risks from household members, animals, and community crime. Risk factors identified by home visiting staff include geographic location, high-crime areas, evening assignments, men or youth loitering in groups near the home, poor lighting, hostile dogs (Fazzone et al.; Fitzwater & Gates; George, 1996; Kendra & George, 2001; Kendra et al., 1996; Sylvester & Reisener, 2002), public health sexual disease transmission tracking (Schulte et al., 1998), sexual harassment, and racism (Barling et al., 2001; Holtz, 2009). Employer strategies to prevent assaults on staff and enhance safety measures include use of cell phones when cell service is available, which is often not the case in rural areas (McPhaul et al., 2007). Measures such as visiting in pairs or utilizing escorts are less common.

There may also be a link between safety and access for staff and safety and quality for patients in home healthcare. Emerging evidence indicates that safety for staff is inextricably linked to client safety, suggesting that improvements to one may impact the other (Lang et al., 2007; Sylvester & Reisener, 2002). Fearful or threatened workers and their employers may be compelled to delay or avoid visits, shorten visits, or refuse to visit homes in communities that are perceived to be unsafe (Kendra et al., 1996; Sylvester & Reisener; Holtz, 2009). Thus, the possibility exists that home care access, patient safety, and quality of care disparities may exist in communities with high rates of violent crime, substance abuse, and untreated mental illness.

Conceptual Definitions for This Study

Workplace Violence

Violent acts, including physical assaults and threats of assault, directed toward persons at work or on duty. Verbal abuse such as hostility, yelling, and swearing at the home health provider while in the home are also considered acts of workplace violence.

Home Visit Risk

The presence of (1) a household where someone has a prior history of violent behavior, (2) a visit in which either the client/patient or household members are under the influence of alcohol or illicit drugs, (3) a visit to any household where someone is dually diagnosed with a substance abuse disorder and a mental illness, (4) a visit providing personal care to a client

with a cognitive impairment, and (5) a household where lethal weapons (such as guns) are not locked up and/or (6) the status of these risk factors is unknown.

Effective Safety Decision
An effective safety decision is a decision that reduces or eliminates the risk of workplace violence directed toward the home visiting provider. Effective decisions may result in a modification to the visit such as visiting in pairs, visiting with a security escort or supervisor, changing the visit schedule to a safer time of day, shortening the visit, abandoning the visit, declining to make the visit, and discharging the client due to safety concerns.

Workplace Violence Safety Climate (WVSC)
Employer policies and activities that reduce or eliminate the risk of workplace violence directed toward visiting staff. This can include evidence of management commitment to violence prevention such as written policies and resources devoted to safety, meaningful employee involvement such as staff participation in a health and safety committee or staff feedback mechanisms, a program of ongoing data gathering for hazard analysis such as reporting threats, a set of hazard controls including engineering, administrative, and training.

Psychological Job Demands (PJDs)
Task requirement or workload of a given job. It can also be thought of as "how hard one works" (Karasek & Theorell, 1990).

Decision Latitude
An aspect of work that includes skill discretion and decision authority or the ability to choose and use skills on the job. It is also referred to as "control" or "autonomy" (Karasek & Theorell, 1990).

Social Support
Helpful levels of social interaction from coworkers and supervisors (Karasek & Theorell, 1990).

Theoretical Framework

The Job Demand/Job Control model, which has been utilized extensively in work stress research, is applied here as a framework within which to validate the home risk, safety climate, and personal safety decision scales. This model was chosen because the Job Demand/Control Support model predicts job strain from stressful work conditions. Three dimensions decision latitude, psychological demands, and social support interact to explain the physiological consequences of high-stress jobs (Johnson & Hall, 1988; Karasek & Theorell, 1990). In the current study we conceptualize workplace violence as "job strain"; therefore, we hypothesize that workplace violence, such as job strain, is explained by a combination of high PJDs such as violence risk (substance-abusing family members or clients, weapons in the home, or noncompliant mentally ill clients), low autonomy, and low social support. The Job Demand/Control Support model postulates that either high decision latitude or high social support reduces the likelihood of job strain in a high-demand job. The clinician's ability to make a safety decision such as leaving an unsafe home or calling for an escort is a form of "decision latitude." Social support can come from either coworkers or supervisors or both; the safety climate arising from employers' safety activities is the "social support." High demand, low control, and low social support result in strain (and other adverse psychosocial and physical outcomes). The model suggests that high-risk home visits, lack of effective personal safety decisions, and low employer violence prevention strategies will result in increased risks for exposure to violence, and potentially to injury outcomes when applied to the home care setting. Figure 1 depicts the application of the job control model to the risk and control of violence toward home care staff.

Conceptual and theoretical guidance in this field is evolving, but valid and reliable measures are needed. The goal of this research was to develop measures to use in assessing risk for violence toward visiting home workers and to assess the impact of safety strategies used by employers to mitigate the risk. The following hypotheses were tested to establish evidence for validity of the new measures:

1. There will be a positive association between the Home Visit Risk Scale (HVRS) and workplace violence and PJDs experienced by the respondent.
2. There will be a significant difference between home visit risk for respondents who make

safety decisions in the field and those who did not.

3. WVSC will be positively correlated to staff perception of quality of federal violence prevention elements and social support.
4. Scores on the WVSC scale will be negatively correlated with workplace violence experienced by the respondent.

Methods

The HVRS, the Personal Safety Decision Scale (PSDS), and the WVSC scale were developed using focus groups and the literature to generate items (McPhaul et al., 2003, 2005, 2007), which were also reviewed by content experts for relevance (DeVellis, 1991) and cognitive interviews with home care staff (Drennan, 2003) for understandability. A cross-sectional survey was administered to a convenience sample (n = 130) of home care staff to test for reliability and validity of the new measures. *Reliability* refers to the ability to provide consistent or reproducible data and was determined using Cronbach's alpha. *Validity* refers to the accuracy or ability to collect data on what you actually intended to measure (Trochim, 2005) and was determined using a survey of home health staff to test hypotheses using the new scales. The survey findings are reported here.

Sample

Survey participants were recruited from the following four home visiting programs: (a) a for-profit, Medicare-certified agency providing care primarily to posthospitalized clients with acute care needs (urban, suburban, and rural areas); (b) a veterans program providing multidisciplinary primary care services to home-bound veterans; and (c) two programs colocated in a county health department, one of which was Medicare-certified, providing home visits and case management, and the other focused on maternal child and well family members in suburban areas. Surveys were conducted in person during staff meetings at three home visiting programs and distributed in staff mailboxes with a return envelope at the fourth agency. All part-time and full-time home visiting staff employed by the agency or program at the time of survey administration were eligible to participate. The study was approved by the University of Maryland Baltimore Institutional Review Board. Table 1 describes the demographics of the sample.

Measures

Physical Violence

Physical violence was measured using five items adapted from research in mental health facilities (Bensley et al., 1993, 1997; Lanza, 1983,

Figure 1. Relationship of demand control model constructs to the hypothesized model of workplace violence in home visiting.

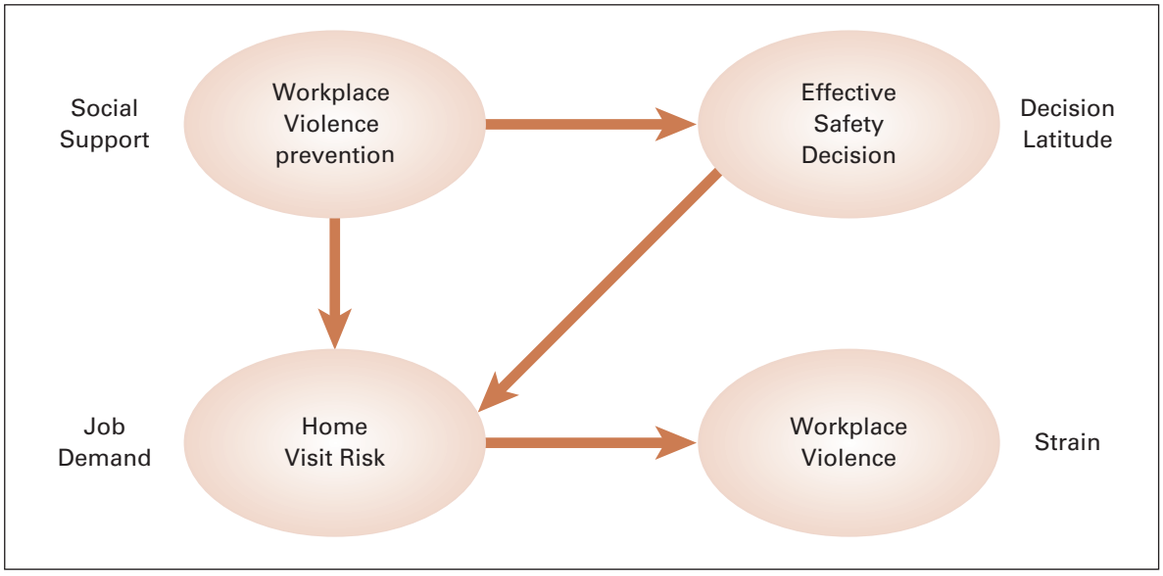


Table 1. Demographics of Sample (n = 130)

Gender	*N*	%
Female	119	91.5
Age (in years)		
50 or older	57	43.8
Race		
Non-white	27	20.8
Job title		
Visiting home, public health, or mental health nurse	45	34.6
Visiting nurse case manager or supervisor	33	25.4
Other (includes aides, physical therapists, speech therapist, social workers, social work assistants)	49	37.7
No response	3	2.3
Level of education		
College degree or higher	115	88.5
Time worked in home visiting workplace		
<0-4 years	29	22.3
5-9 years	27	20.8
>10 years	74	56.9
Typical hours per week		
Regular full (≥35hr/wk)	86	67.2
Part-time (<35hr/wk)	42	32.8
Hold second job		
Yes	37	28.7
Work for agency type		
Private for-profit Medicare-certified	41	31.5
County Health Department: Public Health Nursing	38	29.2
County Health Department: Aging Services	40	30.8
Federal Veterans Primary Care	11	8.5

1985; Lipscomb et al., 2006, 2007). These five items are used as individual items and do not have reported reliability and validity as a scale. The items assessed career-related physical assaults, assaults within the last 12 months requiring healthcare or resulting in soreness without care and unwanted physical contact without injury. Three additional items measured less severe physical contact, including assault with minor injury, assault without injury, and threat of assault.

Verbal Hostility

Verbal hostility was measured by adapting Barling and Kelloway's 3-item scale assessing verbal hostility and one additional item from Kelloway's 11-item violence at work scale (Barling et al., 2001; Rogers & Kelloway, 1997). These four items

have not been used as a scale to our knowledge and have no published reliability. The items included questions about threat with weapon at work, threats to personal property, being yelled at, shouted at, or sworn at, and having personal property damaged while at work. Table 2 depicts the violence items and their frequencies.

Staff Perception of Occupational Safety and Health Administration (OSHA)'s Violence Prevention Guidelines

Lipscomb's 5-item measure of staff perception of employer adherence to the federal violence prevention guidelines were adapted for use in home visiting healthcare because Lipscomb found that staff perceptions of management commitment to violence prevention predicted fewer assaults in a population of mental health workers (Lipscomb et al., 2006). Each item assessed staff perception of the quality of each of the following five elements of the federal violence prevention guidelines: management commitment, employee involvement, hazard analysis of home visiting risk at your agency, violence control measures, and violence prevention training. There is no published reliability, but there is preliminary evidence for validity (Lipscomb et al.).

Job Content Instrument

A 22-item version of the Job Content Instrument (Karasek et al., 1998) was used to assess decision latitude, PJDs, and social support. The instrument has been widely used and validated (Karasek et al.; Pelfrene et al., 2001). Six items assess *skill discretion and three* items assess *decision latitude, comprising* the two dimensions of "decision latitude." Cronbach's alpha reliability coefficients were assessed in six population studies and ranged from 0.68 to 0.86 in men and 0.77 to 0.85 in women for the nine items assessing decision latitude. PJDs were measured using the 5-item version of the psychological demand scale from Karasek's Job Content Instrument. Reliability coefficients for the 5-item PJD scale range from 0.59 to 0.71 in men and 0.51 to 0.72 in women (Karasek et al.). The social support score was derived from the sum of the coworker and supervisor support scales. Each subscale has four items. Published reliability ranges from 0.72 to 0.85 in men and 0.69 to 0.87 in women.

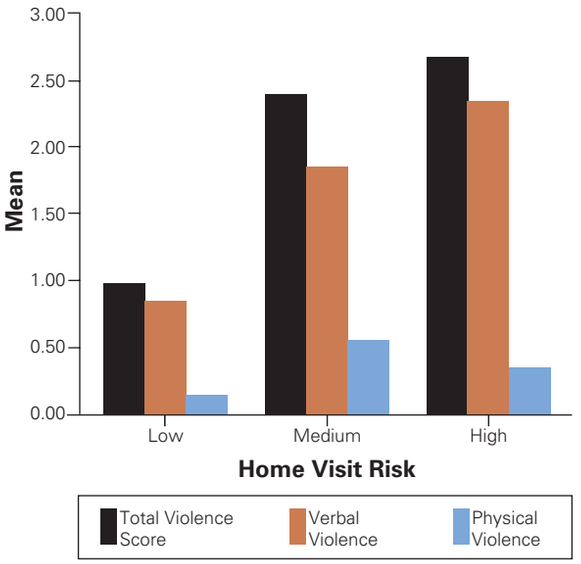
Demographic and Job Characteristics

Demographic variables included *gender*, age, *education*, and *ethnicity*. Job characteristics included job title, length of time with employer, length of

Table 2. Frequency of Exposure to Assaults, Threats of Assault, and Verbal Hostility

Level of violence experienced:	*N*	%
Ever physically assaulted by a client or household member?	14	10.8
Assault requiring an ED or physician visit in the last 12 months?	5	3.8
Assault that led to pain or soreness that lasted overnight, but no visit to physician or ER in the last 12 months?	7	5.4
Assault resulting in mild soreness or minor injury in the last *month?*	3	2.3
Unwanted physical contact without physical injury in the last *month?*	11	8.3
Threatened by a client without physical contact in the last one *month?*	21	16.2
Threatened with a weapon?	6	4.6
Threatened with damage or theft of your personal or workplace property?	4	3
Yelled at, shouted at, or sworn at?	80	61.4
Personal property or workplace property damaged?	6	4.6

Figure 2. Mean, total, verbal, and physical violence.



time in home or visiting public health, work arrangement, work after 5 p.m., and caseload.

New Measures Developed to Assess Risk in Home Care

HVRS

After expert content reviews, cognitive interviews, and confirmatory factor analysis (McPhaul, 2005), the final version of this scale consisted of nine questions asking about the frequency with which providers encounter the risks associated with violence in home health. The response format ranges from *Frequently (daily or weekly), Sometimes (2–4 x's month), Occasionally (Monthly),* and *Rarely/Never*. The scale is scored by summing the items for a score range of 0 to 27. Cronbach's alpha for this scale was .77.

PSDS

This 11-question scale had an unacceptably low Cronbach's alpha at .58; therefore, the scale was eliminated. One question, "Did you ever leave a visit early due to safety concerns?" was used for testing the validity of the HVRS.

WVSC

The final version of this scale consists of nine items assessing the presence of employer safety strategies. The Likert response format includes *strongly agree*, *agree*, *disagree*, and *strongly disagree*. The scale is scored by summing the items for a score range of 0 to 27. Table 4 shows these items and their frequencies. Cronbach's alpha for this scale was .86.

Analytic Strategy

The distribution, interitem correlations, item-to-total correlation, item means and standard deviations, and confirmatory factor analysis for each scale are reported elsewhere (McPhaul, 2005). Cronbach's alpha was evaluated for each new scale to determine internal consistency (Nunnally & Bernsein, 1994). Missing values for scale items were imputed using the estimation maximization (EM) method in SPSS 11.5 (SPSS, 2000). Pearson's correlation was used to analyze associations between the HVRS and WVSC scales and verbal, physical, and total violence, job demands, decision latitude, and social support. Analysis of variance (ANOVA) was used to assess divergent validity for the HVRS and those who made a safety decision in the field.

Results

One hundred ninety-two (192) surveys were distributed to full-time, part-time, and per diem visiting staff in four home health programs between January 2004 and April 2004. One hundred thirty (n = 130) eligible surveys were returned with a response rate of 70%. Table 1 shows the demographics and job characteristics of the final sample. More than three quarters of the sample (77.7%) worked in home visiting workplace for more than 5 years, with over half working more than 10 years. Only 8.4% worked less than 12 months at their current job. The mean number of hours worked per week was 39.7 hours for the full-time employees and 27.8 hours for the full-time employees. More than one quarter of the sample (28.5%) reported holding a second job.

Table 2 depicts the violence experience of the sample. Approximately 11% of the sample reported having "ever been physically assaulted" by a client or household member since working in home care. Five workers reported an assault in the last 12 months requiring an ED or physician visit, whereas four respondents reported an assault that resulted in pain or soreness that lasted overnight, but required no visit to the physician or ED. Twenty-one (16.2%) subjects reported being verbally threatened with assault

at least once in the last 1 month. Verbal hostility or abuse in the form of being "yelled at, shouted at, or sworn at while you've been at work" was reported by 61.4% of the sample.

HVRS

Table 3 shows the final HVRS items and their frequencies. Validity of the HVRS was conducted by testing the hypotheses involving the association between the HVRS score and verbal, physical, and total violence (predictive validity), the job demand score (convergent validity), and workers who made safety decisions compared with those who did not in the last 12 months (divergent validity). Figure 2 shows the dose–response relationship between low-, medium-, and high-risk home visits when compared with the means for verbal, physical, and total violence. The correlation coefficient is .29 (p = 0.0001) for the full-time employees, 0.07 (p = 0.442) for physical violence is, and .25 (p = 0.002) for physical violence is (see Table 5). Home visit risk is positively correlated with verbal and total violence, suggesting that the higher the risk, the more likely a home visitor will experience verbal violence.

Furthermore, home visit risk is highly correlated with PJD, providing support for the hypothesis that home visit risk be conceptualized as job demand. The HVRS score and the PJD score have a correlation coefficient of .21 (p < 0.02). The sample was divided into two groups: those who made a safety decision in the last 12 months and those who did not. A single item rather than the PSDS was used because the scale did not have sufficient reliability to be included in further analyses. An ANOVA demonstrated a significant difference in home visit risk scores for those who made a safety decision in the field compared with those who did not demonstrate evidence for divergent validity (F = 13.70, p = 0.001).

WVSC

Table 4 shows the final WVSC items and their frequencies. Validity of the WVSC scale was assessed by testing the hypothesis that the WVSC was negatively correlated with violence (predictive validity) and positively associated with social support scales (convergent validity). The correlation coefficient is –0.20 for physical violence is, –0.15 for physical violence is, and is –0.23 for physical violence is (see Table 5). Furthermore, WVSC is positively and significantly correlated with social support (0.19) and the Federal OSHA violence prevention elements (0.38) and significantly and negatively correlated with HVRS (–0.10) (Table 5). The WVSC is an inventory of specific safety activities

Table 3. HVRS Item Frequencies (n = 130)

In the last 12 months how often did you visit clients who(se):	Monthly or more often	
	N	%
1. Have both a mental illness and substance abuse disorder (alcohol or drugs)?	47	36.4
2. Are intoxicated during visit?	6	4.7
3. Have a history of assault or violent behavior?	8	6.5
4. Have guns or other lethal weapons visible in the home?	6	4.8
5. Household members engage in illegal activity in the home? In the last 12 months how often do you:	13	10.4
6. Receive information about a client's past violent behavior before the first visit?	18	15.4
7. Receive information about a client's history of mental illness before the first visit?	57	43.9
8. Receive information about a client's substance abuse problem before the first visit?	54	41.5
9. Receive information about criminal activity in the household before the first visit?	13	10.1

for the home health employer and contrasts with Lipscomb's Quality of OSHA Violence Prevention Elements Scale (Lipscomb et al., 2006), which asked five general questions corresponding to the quality of each broad safety principle (i.e., management commitment to safety, etc.).

Limitations

The limitations of this study included a small sample size for confirmatory factor analysis (McPhaul, 2005) that was not a part of this study use of a nonrandom convenience sample for the pilot survey. Furthermore, the four physical

Table 4. WVSC Items Frequencies (n = 130)

My employer:	Agree or strongly agree	
	N	%
1. Has a written safety policy on violence prevention	112	86.1
2. Has a policy addressing staff response to clients who are under the influence of alcohol or drugs	88	67.7
3. Communicates behavior and safety policies to each new client	79	60.7
4. Provides an escort service for staff use on visits	54	41.5
5. Provides safety training on violence prevention	103	79.3
6. Collects statistics on threatening and unsafe situations	45	34.6
7. Has a health and safety committee with both staff and management represented	51	39.2
8. Requires a security escort or joint visits for high-risk visits or visits with insufficient risk information	50	38.4
9. Provides information about criminal history of client 7	29	22.3

Table 5. Results of Hypothesis Testing

Hypothesis		HVRS	WVSC	PSDS
Reliability (Cronbach's alpha of measures)		0.77	0.86	0.58
1. Positive association between the HVRS and workplace violence and PJDs experienced by the respondent.	Physical violence Verbal violence Total violence PJDs	0.07 0.29** 0.25** 0.21*		
2. There will be a significant difference between home visit risk for respondents who make safety decisions in the field and those who did not.	ANOVA	F 13.7 p 0.001		
3. WVSC will be positively correlated with staff perception of quality of federal violence prevention elements and social support.	Coworker and supervisor social support OSHA elements	0.06 -0.02	0.19* .38**	
4. Scores on the WVSC scale will be negatively correlated with workplace violence experienced by the respondent.	Physical violence Verbal violence Total violence		-0.15 -20* -0.23**	

* $p < 0.05$.
**$p < 0.01$

assault items reflected two time frames, potentially underestimating the prevalence of physical assault even though the monthly estimates were multiplied by 12 to estimate an annual total. Finally, the lack of a "gold standard" for predictive validity testing for home visit risk and employer violence prevention attenuates the evidence for predictive validity.

Discussion

Strengths of the study include the use of theory to develop the new tools and the use of qualitative measures to develop scale questions. This project builds upon existing measures adapting them to the home healthcare setting. Including measures of risk, outcomes, and controls in the same survey is also a strength. The measures of home visit risk and safety climate will be most useful if they can be utilized by home health programs to assess home visit risk and develop policies to prevent violence.

Future studies of workplace violence in home visiting workplace should attempt to describe the phenomena of home visit risk, personal safety decisions, employer violence prevention, and violent outcomes in a representative sample of employers. Furthermore, the literature suggests that variations by program type (i.e., sexually transmitted disease follow-ups, child protective services, mother baby programs, and elderly case management) may require specific policies to ensure safety of the providers and clients. This study provides preliminary evidence for the types of risks that home care providers and their clients may encounter, the types of available safety measures, and preliminary evidence for the protective effect of safety policies. Future studies are urgently needed, especially intervention effectiveness studies evaluating safety policies on a larger scale.

Implications for Practice

Home care clinicians and employers undoubtedly understand that there is significant risk to employees who conduct home visits. What they may not know is the evidence from the occupational safety sciences for a comprehensive approach to workplace violence prevention (Lipscomb et al., 2006; McPhaul, 2007; OSHA, 2004; Peek-Asa et al., 2007, 2009). The evidence for prevention of workplace violence strongly suggests that robust surveillance systems, which capture not only compensable claims with significant injuries but also the less severe (but very frightening) instances of high-risk visits, verbal threats, stalking, exposure to dangerous animals, and illegal activities, are necessary to design cost-effective safety programs. These same surveillance measures can evaluate new safety measures or changes in practice on an ongoing basis. Many employers provide safety policies and services that are up to the discretion of the staff to utilize (i.e., cell phones, escort services, paired visits for high-risk households), but staff do not always avail themselves of these safety services (McPhaul, 2005, 2007). Further research is needed to test whether safety measures are more effective if mandated by the employer or to examine the barriers to staff going out in pairs for high-risk visits. Occupational safety is often a balance between resources and costs and the needs and desires of the staff and clients. The potential link between staff safety and patient care access, quality, and safety must be explored further to understand the full cost and impact of workplace violence in home care. In the meantime, direct care staff and management can work together on safety committees to evaluate all possible sources of data or to create data systems to evaluate the level of risk for home healthcare staff. ⌂

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