Development of The Partner's Treatment of Animals Scale

Amy Fitzgerald*

Department of Sociology, Anthropology, and Criminology

Great Lakes Institute for Environmental Research

University of Windsor

Canada

Betty Barrett

Women's and Gender Studies

University of Windsor

Canada

Rachael Shwom

Department of Human Ecology

Rutgers University

USA

Rochelle Stevenson

Department of Sociology, Anthropology, and Criminology

Great Lakes Institute for Environmental Research

University of Windsor

Canada

Elena Chernyak

Department of Sociology

Hartwick College

USA

*Address for correspondence: Amy Fitzgerald, Department of Sociology, Anthropology, and Criminology, 401 Sunset Avenue, Windsor, Ontario, Canada, N9B 3P4.

Abstract

Although studies of the relationship between animal abuse and intimate partner violence have proliferated in recent years, building upon previous work and making cross-study comparisons have been rendered difficult by the utilization of differing operationalizations of animal maltreatment within this literature. This paper aims to mitigate this problem by introducing and detailing a scale of animal maltreatment by romantic partners developed and tested with a sample of 55 women in domestic violence shelters who self-identify as victims of intimate partner

violence. The Partner's Treatment of Animals Scale (PTAS) is comprised of five scales (emotional animal abuse, threats to harm animals, animal neglect, physical animal abuse, and severe animal abuse) and has strong demonstrated reliability. The construction of the scales is presented in this paper, and recommendations are made for employing the PTAS in subsequent studies.

Introduction

Research on intimate partner violence (IPV) has revealed a strong connection between the abuse of human family members and the maltreatment of companion animals.[1] Many people form very close bonds with companion animals, viewing them as members of the family (Cain 1985; Veevers 1985; Arluke and Sanders 1996; Sanders 1999; Irvine 2004) and as important sources of support and love (Sable 1995; Beck & Madresh 2008). For women experiencing violence at the hands of an intimate partner, the love and support from a companion animal may

be the only positive relationship they have left (Flynn, 2000a, 2000b; Fitzgerald 2005; Faver & Strand 2007). Animal abuse in this context can be extremely traumatic for the people who love the animal victim, not to mention the deleterious impacts it has on the animals involved.

Studies focused specifically on animal maltreatment in the context of IPV have generated important findings. Notably, they have documented that many abused women with companion animals report animal maltreatment by their abusive partner, although the reported proportions vary wildly between 25 (Simmons and Lehmann 2007) and 86 percent (Strand and Faver 2005). These studies have also identified several serious consequences of the abuse, not only for the animal victims, but also for the human victims in the home. The abuse of animals can be instrumentalized by abusers to harm the human targets who care for them (Flynn 2000a, 2000b; Fitzgerald 2005). Studies also indicate that animal abuse is positively correlated with more types of partner abuse, and more frequent and severe abuse (Simmons and Lehmann 2007; Maiuro et al. 2008).

As a result of the bond many victims of IPV have with their companion animals, it is not uncommon for women fleeing an abusive relationship to delay leaving because they cannot bring their companion animals with them to a shelter, and many have few alternatives to leaving companion animals with their abuser. The proportion of samples who report delayed leaving ranges between 18 and 60 percent (Ascione 1998; Flynn 2000a; Daniell 2001; Faver and Strand 2003; Carlisle-Frank, Frank, and Nielsen 2004; McIntosh 2004; Fitzgerald 2005, 2007; Strand and Faver 2005; Ascione et al. 2007; Volant et al. 2008). It is also reported that some women return to their abuser for the sake of their companion animals (Quinlisk 1999; Fitzgerald 2005,

2007). Delayed leaving and returning to an abusive partner clearly poses serious risks for the human and animal victims. What is less well understood is what can be done to minimize these risks.[2]

Our study began with a focus on understanding the help-seeking behavior of abused women with companion animals in the understudied national context of Canada. In looking to build upon previous research that had been conducted elsewhere, we quickly noted a difficulty in making comparisons across those studies and building upon their measures: animal maltreatment had been operationalized in dramatically different ways (e.g., only as physical abuse, as physical abuse and neglect, or occasionally including threats), and few systematic measures had been used. The differing operationalizations are likely at least partially responsible for the large range in the proportion of abused women also reporting animal maltreatment across samples noted above. We were also cognizant that simply asking abused women if their partners had abused their pets would likely be a biased measure of animal maltreatment because there are many harmful actions, and indeed failures to act, that some people might not immediately define as abusive. Further, we wanted to capture the entire spectrum of animal maltreatment and continuum of severity within and between cases. Asking numerous questions about different types of animal maltreatment that could potentially be combined into a scale therefore better served our purposes and we thought it could also benefit future research. We consequently expanded our search to include instruments developed for measuring animal maltreatment among many different populations (reviewed in the next section) and assessed what would be useful to derive from that specific segment of the literature for measuring animal maltreatment by perpetrators of IPV in particular and tested the items with focus groups of women who self-

identify as victims of IPV. This resulted in the inclusion of 40 specific questionnaire items with the aim of developing a scale that could provide a systematic measure of animal maltreatment by partners and be replicated with other samples.

The specific literature on the intersection of animal abuse and IPV is not alone in facing the challenges posed by the use of disparate measures. Wilson and Netting (2012) have pointed out that the broader literature on human-animal relationships is fragmented as a result of inconsistent measures and little replication. They write,

> our review reveals that when one has seen one study in human-animal companionship, one has seen one study. What we mean is that even in studies that are addressing similar population groups and considering similar constructs such as attachment level, there does not seem to be a great deal of intentionality in using the same tools or even trying to replicate existing studies... the difficulty is that, particularly with intervention studies, there is little hope of designing an intervention to replicate (or even come close to replicating) so that the 'evidence' is seen as contradictory and can easily be dismissed by the scientific community. If the field is to develop credibility it needs more intentionality in designing studies that are comparable in their interventions, using valid and reliable measurements (2012: s17).

They go on to explain that "if multiple studies are not designed to be more comparable, the possibility is lost for pooling the results and thus having more robust findings" (s18).

Wilson and Netting (2012) recommend scale development as a way to move the literature forward. They make twelve recommendations regarding scale construction and dissemination, six of which are particularly relevant for the purposes of this paper. First, they recommend that publications describe the purpose of the scale, the populations it is intended for and where it has been tested, and how the resultant data will be used. Second, the scale should be made available to other researchers instead of imposing copyright. Third, the measures ought to be assigned

meaningful and distinctive names, as well as a description of scoring and meanings of scores. Fourth, it is necessary to provide an explanation of the way the instrument was designed, as well as the underlying conceptualizations. Fifth, authors should explain why items in the instrument were included. (We think it is also helpful to explain what items were excluded and why). Finally, the researchers should assume responsibility for future instrument development and refinement.

In this paper we present and describe the development of our scales to measure animal maltreatment by romantic partners, which we have collectively coined the Partner's Treatment of Animals Scale (PTAS). Keeping Wilson and Netting's (2012) recommendations in mind, we present the scales with the aim of helping to further the literature on the relationship between animal abuse and IPV. We begin the paper by briefly reviewing currently used measures of animal maltreatment and discussing the insights we derived therefrom. Subsequently, we describe our instrument, the five scales derived from our sample, and the specific constitutive items. We conclude by highlighting the potential contributions of the scales, discussing the limitations, and making suggestions for use in subsequent research.

Measuring Animal Abuse

Within the broader literature measuring human relationships and interactions with various types of animals,[3] a number of scales have been developed to provide insight into the negative side of human-animal interactions: animal maltreatment. A couple of scales have been developed specifically to measure attitudes towards the (ab)use of animals. The Animal Attitudes Scale

(AAS) is one such instrument. It is comprised of 29 Likert scale items (Herzog, Betchart, and Pittman 1991). It has been used in subsequent studies (see Herzog and Golden 2009), and an abbreviated version has also been developed and utilized (see Matthews and Herzog 1997; Signal and Taylor 2007; Herzog, Grayson, and McCord 2015). Reported Cronbach alpha levels (a measure of internal reliability) for this scale have ranged from 0.88 to 0.91 (Wilson and Netting 2012).

The Attitudes towards the Treatment of Animals Scale (ATTAS), subsequently developed by Henry (2004), focuses on respondents' perceptions of specific forms of animal maltreatment. This scale is comprised of 26 Likert scale items and has three underlying factors or sub-scales: *cruelty*, *utilitarian*, and *caregiving*. The *cruelty* sub-scale measures participants' attitudes towards intentional harm in the absence of apparent necessity, the *utilitarian* measures respondents' attitudes towards the commodification and intstrumentalization of animals, and *caregiving* measures attitudes towards caring for animals (Henry 2006). This scale has been deemed useful in subsequent studies (see Henry 2006; Alleyne, Tilston, Parfitt, and Butcher 2015).

There are other scales that measure the likelihood of engaging in harmful behavior with animals instead of merely one's attitudes towards it. The Animal Abuse Proclivity Scale (AAPS) uses six hypothetical scenarios involving the maltreatment of animals and depicting the most common motivations for such actions. Four Likert scale questions measure participant responses to the scenarios. Use of the scale has resulted in Cronbach's alpha scores of at least 0.62 (low) and 0.76 (acceptable). Research using the scale has found an underlying gendered element, with

men scoring higher on the scale, indicating more endorsement of animal maltreatment (Alleyne, Tilston, Parfitt, and Butcher 2015).

Then there are some scales that explicitly measure interactions between specific segments of the population and animals. For instance, Ascione, Thompson, and Black (1997) developed the Children and Animals (Cruelty to Animals) Assessment Instrument (CAAI). The semi-structured interview instrument was developed specifically for use with children five years and older and their parents. The scoring criteria were subsequently standardized as Likert scales by Dadds, Whiting, Bunn, Fraser, Charlson, and Pirola-Merlo (2004). The instrument measures the following nine dimensions of animal cruelty: severity, frequency, duration, recency, diversity within and among categories (that is, the number of animals abused in each category), sentience (the level of concern by the participant for the animal), covertness (the degree the event was covered up by the participant), isolation (a measure of how many people were involved), and empathy (a measure of the degree that the participant felt remorse for his/her actions). The Children's Treatment of Animals Questionnaire (CTAQ), developed by Thompson and Gullone (2003), is another instrument used in the literature. The 13-item measure was subsequently used by McDonald, Vidacovich, Ascione, Williams, and Green (2015) with a sample of children exposed to IPV. They obtained a Cronbach's alpha value of 0.84. Another scale, the Physical and Emotional Tormenting against animals Scale (PET Scale), was developed specifically for use with (pre)adolescent children. The self-report instrument is comprised of two subscales: the first measures perpetration of animal abuse and contains five items and the second measures exposure to animal abuse and is comprised of four items. The items are measured using a Likert scale (Baldry 2003, 2004, 2005). Testing of the internal reliability of each subscale resulted in a

Cronbach's alpha value of 0.84 for the first and a lesser value of 0.69 for the latter (Baldry 2004). Subsequent use of the scale established the same Cronbach's alpha for the latter subscale and a value of 0.70 for the former (Gullone and Robertson 2008).

There are only a couple of instruments that have been used to better understand animal abuse in the specific context of IPV. The Boat Inventory on Animal-Related Experiences (2006) measures relationships with animals kept as pets, supportive use of animals, experiences of loss related to animals, fear of animals, exposure to animal maltreatment, and perpetration of animal maltreatment. It is a 20-item inventory. Notably, however, the questions are not standardized. Participants are asked if they have witnessed anyone deliberately harm an animal, and if so, who the perpetrator was. The response options given are (1) friend or acquaintance, (2) family member or relative, (3) stranger, and (4) Other. Presumably a romantic partner would fall under the second category, but it is a large category that would include a number of other relations. The instrument then inquires about the types of animals the respondent has witnessed being harmed and what the specific acts were. Participants can select among the following eleven forms of harm: drowned; hit, beat, kicked; stoned; shot; strangled; stabbed; burned; starved or neglected; trapped; had sex with; and other (Boat 2006).

Subsequent studies have adopted and modified Boat's Inventory. Flynn (1999) used five of the animal maltreatment categories in his study examining participation in animal abuse and support of interpersonal violence in the context of the family as an adult. Schwartz, Fremouw, Schenk, and Ragatz (2012) modified the inventory to specify the number of times abuse was perpetrated and used it in their study exploring the psychological profiles of animal abusers and

the gendered dimensions. It is worth noting that subsequent uses of the Inventory dropped the sexual abuse items because of low report rates (Henry 2006).

The Battered Partner Shelter Survey (BPSS) was specifically developed to measure animal abuse in the context of IPV. The BPSS contains general demographic items, questions regarding the number and types of animals in the home and veterinary care, in addition to questions about what happened to the animals. The specific questions about animal maltreatment by one's partner include the following: "Has your partner helped care for your pets?", "Has your partner ever THREATENED to hurt or kill one of your pets?", "Has your partner ACTUALLY HURT or KILLED one of your pets?" (Ascione, Weber, Thompson, Heath, Maruyama, and Hayashi 2007: 367-370). The answer options are dichotomous (yes/no), with an open-ended question requesting that the participant describe the incident in detail. The instrument has been adopted in other studies. For instance, Ascione (1998) used it in his study of a sample of 38 women in shelters in Utah, and McDonald et al. (2015) modified the instrument and used it with mothers to inquire about their children's treatment of animals.

We derived several insights from this literature in developing our specific questions and resultant scale. We build most closely upon the questions in the Boat Inventory and the Battered Partner Shelter Survey. However, because we were interested specifically in harms perpetrated by abusive partners as observed by abused women, we framed the questions more narrowly than done in the more general Boat Inventory. We also included more specific questions than those in the BPSS, which ask generally about one's partner caring for pets, threatening harm, and perpetrating harm. The Boat Inventory asks about some specific types of physical abuse (e.g.,

stabbing, burning, neglect), which we borrowed from and tested with focus groups (discussed in detail in the Methods section) to see which forms of harm made the most sense to include. We also included threats to harm animals, as done in the BPSS and in another section of the Boat Inventory. We also included questions about sexual abuse, which the Boat Inventory also contains. Finally, we added questions about the actual removal of pets from the home by a partner.

In order to maximize the measurement of these forms of abuse, we use Likert-style answer choices. This format is consistent with the attitudes towards the use of animals scales and most of the scales measuring the proclivity for and perpetration of harm against animals. We found this preferable to the less structured answer options contained in the Boat Inventory and the dichotomous yes/no answer options in the BPSS. Systematic use of Likert response options made it possible to create a scale of animal maltreatment perpetrated by partners, detailed next.

Methods

A complete list of emergency and transitional shelters serving abused women in Canada was obtained through the Government of Canada report *Transition Houses and Shelters for Abused Women in Canada* (2008), which provides contact and service information for each organization, including the type of facility it is (i.e., first-stage transition house, second-stage housing, or safe house).[4] From this list, a purposive sample of first-stage transition house organizations was selected to ensure geographic representation as well as the inclusion of both small and large agencies in rural, suburban, and urban locations. Selection was based on provincial representation (two to three organizations from each province) and the relative size of the

organization. A total of 40 organizations were approached by the research team to participate in the study. An initial introductory letter was sent to each organization by the Principal Investigator (PI), with a subsequent follow up phone call which occurred approximately two weeks after the letter was sent. Of the 40 organizations invited to participate, a total of 23 shelters consented to be sites for data collection.

Data Collection

Data collection for the study consisted of two phases: (1) focus groups with shelter residents[5] and (2) survey administration to shelter residents. Ethics review board approval was granted by the University of Windsor (#12-229) and Rutgers University (#13-471M).

Focus groups. The first phase of data collection involved conducting focus groups at eight of the 23 participating shelters. Location was a key criterion for the selection of organizations for focus groups, as we selected shelters in regions close to an airport and preferably within driving distance to another shelter in order to maximize participation. The purpose of these groups was to obtain feedback on item wording, clarity, ease of comprehension, content, and length of a survey instrument developed by the research team investigating abused women's experiences of violence in their relationships, their experiences with companion animals while involved in these relationships, and the role that companion animals played in their experiences seeking help in the aftermath of violence. Included in this survey were questions about animal maltreatment by abusive partners, with Likert-style response categories, developed specifically for this project with the aim of creating an animal maltreatment scale.

Eight focus groups were conducted, with groups ranging in size from one to eight participants. In total 49 shelter residents participated in the focus groups. Groups were conducted

in English, and lasted, on average, approximately one hour. All focus groups were facilitated by the same doctoral level Research Assistant (RA), who had previous experience conducting qualitative research on the intersection of IPV and animal abuse, as well as with the Principal Investigator (PI) in some instances. The focus groups were audio recorded. Participants were given $5 gift cards for a coffee shop to compensate them for their time.

Survey. Based on the feedback obtained in the focus groups, the original survey was modified to incorporate recommendations for improving the clarity of meaning and ease of comprehension of the instrument. Feedback from the focus groups resulted in five questions being added to the animal maltreatment scale, for a total of forty items (see Appendix A). The revised survey was then distributed, in hard copy form, to the seventeen shelters that agreed to serve as sites for data collection for the second phase of the project. Staff persons at agencies were asked to invite interested residents to participate in the survey and to review the informed consent form with residents prior to survey administration. The survey was then self-administered by participants, who returned the completed survey to staff members in a sealed envelope. Participants were given $5 gift cards for a coffee shop to compensate them for their time. Additionally, participating shelters were given $25 gift cards for a coffee shop to thank them for facilitating the dissemination of the surveys. Upon collection of all returned surveys, agency staff then returned the package of completed surveys and signed informed consent forms to the research team.

Participants

In total one hundred resident surveys were returned to the research team by the participating shelters. Of the returned surveys, eighty six respondents provided data regarding companion animals. Sixty four percent (n=55) of those eighty six indicated that they had

companion animals while they were in a relationship with their abuser. These fifty five women

served as the sample for the present study. Table 1 outlines the socio-demographic characteristics

of the sample. Participants ranged in age from 21 to 66 years (M = 40.5, SD = 10.99). The

average number of children they had was slightly more than one (M = 1.4, SD = 1.65) with their

abuser. They also on average had just over one child with someone other than their abuser (M =

1.2, SD = 1.42). Cats were the most frequently reported companion animal, with 78.2% (n=43)

reporting having at least one cat (M = 1.69, SD = 1.62, $Range$ = 0 to 6 cats). Dogs were the

second most common companion animal, with 63.6% (n =35) reporting having at least one dog

while with their abuser (M = 1.24, SD = 1.32, $Range$ = 0 to 5 dogs). Of the women who had

companion animals during their abusive relationships, 72.7% (n =40) had them when they left

the relationship (M = 3.43, SD = 13.85, $Range$ = 0 to 100 animals at time of departure[6]). The

majority of women with companion animals at the time of departure (n =24) reported that the

animals were currently still in the care of their abuser. Of those whose companion animals were

not in the care of the abuser, only two women reported that the animal was currently in their own

care in shelter with them.

Measure

The Partner's Treatment of Animal Scale (PTAS) was designed to measure behavioral acts of

omission and commission perpetrated by one's partner to cause physical or emotional harm to

one's companion animal. As discussed earlier, items were selected for inclusion in the scale

based on: (1) an extensive review of the literature measuring relationships and interactions with

various types of animals, as well are the animal abuse literature more specifically, (2) findings

from previous published qualitative research conducted by the PI exploring abused women's

experiences of violence against animals in the context of their relationships (author reference removed for blind review), and (3) in response to feedback from the abused women who participated in our focus groups. Forty items in total were included in the original scale. Items were coded on a scale of 1 to 5 to assess the frequency with which each individual act occurred (5= *very frequently*, 4 = *frequently*, 3 = *occasionally*, 2 = *rarely*, 1 = *never*), with a *don't know* option also provided.

Analysis

Data analysis was completed using STATA version 13. First, we assessed missing data and collinearity between the variables. For each item on the PTAS, item non-response rates were deemed low (*Range* 1-4 participants per item), so it was decided to exclude missing data from the analysis rather than use imputation. Additionally, responses of *don't know* were also deemed to be low (*Range* 1-5 participants per item), so these responses were similarly excluded from analysis. Inter-correlation among items was then assessed using a correlation matrix to ensure all items were contributing to the latent construct. Items that were correlated at a level of .75 or higher were examined conceptually to determine if the items should be combined into a single item for parsimony. In examining items with high correlation, it was determined that each item was conceptually distinct and no items were further collapsed.

We conducted confirmatory factor analysis (CFA). Due to the relatively small sample size and the large number of questionnaire items in the scale, exploratory factor analysis could not be conducted. We therefore conducted a series of factor analyses grounded in conceptual distinctions in the literature made between forms of abuse (i.e., emotional abuse, threats, removal

of pets, neglect, sexual abuse, and physical abuse). Factor extraction was conducted using principle factor method.

A range of recommendations for minimum sample sizes exist in the published literature, with little consensus regarding strict rules for best practices in this area (Costello & Osborne 2005). As noted by Preacher and MacCallum (2002), "good factor recovery may be achieved even with very small sample sizes, assuming other conditions hold" (p. 160). Such conditions, they posit, include high commonalities, relatively small numbers of expected factors, and low model error. If such conditions are met, they contend "researchers and reviewers should not be concerned about small sample sizes" (p. 160). Similarly, Costello and Osbourne (2005) note that accurate analysis can be conducted with smaller samples if the data has moderate (above 0.40) to high commonality (or, conversely, uniqueness scores of 0.60 or below), without item cross-loadings (with each item loading on no more than one factor at a level of 0.32 or higher), and if multiple variables load strongly (with a factor loading above 0.50 or higher) on each factor. In the present study, all retained items in the final scales possessed uniqueness scores of 0.60 or lower, all factor loadings were 0.32 or higher, and all factors had multiple items loading at a level of 0.50 or higher (Table 2), suggesting a sufficient sample size to support the analysis.

Results

Upon evaluation of the overall Kaiser-Meyer-Olkin (KMO) scores and Bartlett's test of sphericity for the factors, two item groupings (representing questions related to sexual abuse and getting rid of pets) were dropped due to low (less than 0.70) overall KMO scores (Kaiser 1974) or failure to reject the Bartlett's test hypothesis that the correlation matrix is an identity matrix (Gorsuch 1983; Pedhazur and Schmelkin 1991). Further inspection of individual items resulted

in the removal of items within retained factors if the individual item factor loadings were less than 0.30 or the uniqueness value was greater than 0.60. Nineteen items were ultimately dropped from the scales based on the following criteria as a result of those criteria. This resulted in the most parsimonious scales.

A sequence of factor analyses confirmed the existence of the following five factors comprised of twenty one questionnaire items overall: (a) emotional abuse of animal(s), (b) threats to harm animal(s), (c) physical neglect of animal(s), (d) physical abuse of animal(s), (e) severe physical animal abuse. Table 2 outlines the factor loadings for each item per factor and its uniqueness value. Table 3 outlines the summary statistics for each of the five factors.

Reliability analysis was conducted for each of the five subscales. As noted in Table 3, each demonstrated acceptable reliability ($\alpha > .80$). The number of individual question items contained in each scale ranges from three to five. The *neglect* scale is comprised of three items, the *threat* and *severe physical abuse* each contain four items, and the *emotional abuse* and *less severe physical abuse* scales are composed of five items each. Additive scores for each respondent can be calculated for each scale. The potential scores range from three to 15 for the *neglect* scale, four to 20 for the *threat* and *severe physical abuse* scales, and five to 25 for the *emotional abuse* and *less severe physical abuse* scales. Individual scores on these scales provide insight into the relative frequency of the perpetration of that form of maltreatment and can be used in subsequent analyses.

Discussion and Conclusions

18

The five factors/scales identified through factor analysis, and detailed above, confirm conceptual understandings in the literature. The literature on the coexistence of animal abuse and IPV is replete with evidence indicating that the maltreatment of companion animals by abusive partners is not unidimensional and it can take the shape of emotional and physical abuse, neglect, and threatening behavior. These various forms of maltreatment can be similarly instrumentalized in the abuse of human victims of violence in the home (Flynn 2000a, 2000b; Fitzgerald 2005). The literature also contains accounts of the removal of pets and perpetration of sexual abuse involving animals. In our analyses, however, the removal of pets and sexual abuse items did not cohere into factors. This is likely because affirmative responses to these questions were infrequent. Subsequent research including the sexual abuse and animal removal items may find greater levels of reporting, and thus make it possible to test for those scales; however, it seems as though doing so would require a very large sample -- much larger than those currently reported in the literature. If such samples could be accessed, we would recommend including those questionnaire items.

It is noteworthy that the physical abuse items divided up into two factors, physical abuse generally and severe physical abuse, while the other three scales (emotional abuse, threats, and neglect) represent unique forms of animal maltreatment. Subsequent use of the PTAS should assess if scores on these two physical abuse scales (as well as the other three scales) are respectively predictive of different types of IPV, as well as child abuse. They may also be differentially predictive of the severity of human victimization. In addition, it would be useful to examine how scores on these scales are related to the help-seeking behavior of abused women. Are abused women more likely to seek help in the face of some forms of animal maltreatment?

Conversely, are abused women more likely to delay leaving an abusive partner where certain forms of animal maltreatment are more prevalent?

Addressing these and other questions, and making meaningful comparisons across samples in a relatively parsimonious manner, ought to be made easier with the use of the PTAS. By extension, employing the scale in subsequent studies should facilitate advancements in this area of research. That being said, there are a couple of limitations that should be acknowledged. First of all, we are relying on abused women's reports of their abusive partners' treatment of animals. We have no way of knowing if there is under- or over-reporting of animal maltreatment. The possibility of underreporting, for instance, seems most likely for cases of sexual abuse because this form of abuse may be the most likely to be actively hidden by perpetrators. Second, while we were able to assess the internal reliability of the scales, we were unable to assess the external reliability and validity of the scales in this study. We encourage further research aimed at making these assessments.

Despite these limitations, the PTAS promises to be a useful instrument for measuring animal maltreatment in abusive romantic relationships. We agree with Wilson and Netting's (2012) assertion that in order for the field of Human-Animal Studies to gain greater credibility in the larger scientific community, among other things, more consistent measurement tools need to be developed and employed. With this goal in mind, we have included herein all of the individual questionnaire items analyzed for this paper. We hope that researchers will find the PTAS useful, that the validity of the scale will be assessed with numerous and diverse samples, and that this new tool will make it easier to more fully understand and better serve the victims of IPV and animal maltreatment.

[1] A brief comment regarding terminology is warranted here. We use the term 'animal' herein to refer to non-human animals for ease in reference. We also use the term 'companion animal' to refer to those non-human animals kept by people largely for affective reasons; the term 'pet' is also used occasionally herein to also refer to those animals as it is the terminology most commonly used among the general public, including our research participants.

[2] The SAFE-T program is a relatively new program aimed at reducing the risks for the human and animal victims (see http://alliephillips.com/saf-tprogram/?doing_wp_cron=1459183889.9843409061431884765625)

[3] For a fairly exhaustive list see Wilson and Netting (2012). They identify 140 human-animal interaction scales as of 2012. According to their review, the Pet Attitude Scale (PAS; Templer, Salter, Diskey, Baldwin, and Veleber, 1981) is the oldest and the Lexington Attachment to Pets Scale (LAPS; Johnson, Garrity, and Stallones, 1992) is the most commonly used.

[4] Transition houses are also referred to as emergency shelters. Residents only stay in these facilities for short periods of time, usually no more than 11 weeks. Second stage housing is longer term (usually 3 - 12 months) and is accompanied by services to assist residents find permanent housing. Safe homes are private homes that house victims during short term, emergency situations (Public Health Agency of Canada, http://www.phac-aspc.gc.ca/sfv-avf/sources/fem/fem-dir-transition/introduction-eng.php).

[5] Shelter staff participated in separate focus groups and completed a survey designed specifically for staff members as part of the larger study. Those results are not discussed herein because they do not pertain directly to the construction of the PTAS.

[6] The respondent who reported having 100 animals lived in a rural farming context, and although some might refer to a portion of the animals she had as "livestock" animals, she nonetheless conceptualized them as her companions and therefore reported them as such in the survey.

References

Alleyne, E., Tilston, L., Parfitt, C., and Butcher, R. 2015. Adult-perpetrated animal abuse: Development of a proclivity scale. *Psychology, Crime and Law 21*(6): 570-588.

Arluke, A. and Sanders, C. R. 1996. *Regarding Animals.* Philadelphia: Temple University Press.

Ascione, F. 1998. Battered women's reports of their partners' and their children's cruelty to animals. *Journal of Emotional Abuse 1*(1): 119-133.

Ascione, F.R., Thompson, T.M., and Black, T. 1997. Childhood cruelty to animals: Assessing cruelty dimensions and motivations. *Anthrozoös 10*(4): 170-199.

Ascione, F., Weber, C., Thompson, T., Heath, J., Maruyama, M., and Hayashi, K. 2007. Battered pets and domestic violence: Animal abuse reported by women experiencing intimate violence and by nonabused women. *Violence against Women 13*(4): 354-373.

Baldry, A. 2003. Animal abuse and exposure to interparental violence in Italian youth. *Journal of Interpersonal Violence 18*(3): 258-281.

Baldry, A. 2004. The development of the PET Scale for the measurement of physical and emotional tormenting against animals in adolescents. *Society and Animals 12*(1): 1-17.

Baldry, A. 2005. Animal abuse among preadolescents directly and indirectly victimized at school and at home. *Criminal Behaviour and Mental Health 15*(2): 97-110.

Beck, L., & Madresh, E. A. 2008. Romantic partners and four-legged friends: An extension of attachment theory to relationships with pets. *Anthrozoös 21*(1): 43–56.

Boat, B. ed. 2006. *Clinical Approaches to Assessing and Utilizing Animal-Related Experiences in Therapeutic Interventions with Children, Adolescents, and their Caregivers*. San Diego, CA: Academic Press.

Cain, A. O. 1985. Pets as Family Members. *Marriage & Family Review 8*(3): 5–10.

Carlisle-Frank, P. L., Frank, J. M., & Nielsen, L. (2004). Selective battering of the family pet. *Anthrozoös 17*(1): 26–42.

Costello, A.B., & Osborne, J.W. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research & Evaluation 10*(7). < http://www.pareonline.net/pdf/v10n7.pdf>

Dadds, M., Whiting, C., Bunn, P., Fraser, J., Charlson, J., and Pirola-Merlo, A. 2004. Measurements of cruelty in children: The cruelty to animals inventory. *Journal of Abnormal Child Psychology 32*(3): 321-334.

Daniell, C. (2001). Ontario SPCA's women's shelter survey shows staggering results. *The Latham Letter 22*(2): 16–17.

Faver, C. A., and Strand, E. B. (2003). To Leave or to stay?: Battered women's concern for vulnerable pets. *Journal of Interpersonal Violence 18*(12): 1367–1377.

Faver, C. A., and Strand, E. B. 2007. Fear, guilt, and grief: Harm to pets and the emotional abuse of women. *Journal of Emotional Abuse 7*(1): 51–70.

Fitzgerald, A. J. 2005. *Animal Abuse and Family Violence: Researching the Interrelationships of Abusive Power*. Lewistown, NY: Mellen.

Fitzgerald, A. J. 2007. "They gave me a reason to live": The protective effects of companion animals on the suicidality of abused women. *Humanity and Society* 31(4): 355-378.

Flynn, C. P. 1999. Animal abuse in childhood and later support for interpersonal violence in families. *Society & Animals 7*(2): 161-172.

Flynn, C. P. 2000a. Battered women and their animal companions: Symbolic interaction between human and nonhuman animals. *Society & Animals 8*(2): 99–127.

Flynn, C. P. 2000b. Woman's best friend: Pet abuse and the role of companion animals in the lives of battered women. *Violence against Women 6*(2): 162–177.

Gorsuch, R. L. 1983. *Factor Analysis* (2nd ed). Hillsdale, NJ: Lawrence Erlbaum Associates.

Gullone, E. and Robertson, N. 2008. The relationship between bullying and animal abuse behaviors in adolescents: The importance of witnessing animal abuse. *Journal of Applied Developmental Psychology* 29: 371-379.

Henry, B. 2004. The relationship between animal cruelty, delinquency, and attitudes toward the treatment of animals. *Society & Animals 12*(4): 185-207.

Henry, B. 2006. Empathy, home environment, and attitudes toward animals in relation to animal abuse. *Anthrozoös 19*(1): 17-34.

Henson, R.K., & Roberts, J.K. (2006). Use of factor analysis in published research: Common errors and some comment on improved practice. *Educational and Psychological Measurement 66*(3): 393-416.

Herzog, H., Betchart, N., and Pittman, R. 1991. Gender, sex role orientation and attitudes toward animals. *Anthrozoös 4*(3): 184-191.

Herzog, H. and Golden, L. 2009. Moral emotions and social activism: The case of animal rights. *Journal of Social Issues 65*(3): 485-498.

Herzog, H., Grayson, S. and McCord, D. 2015. Brief measures of the Animal Attitude Scale. *Anthrozoös 28*(1): 145-152.

Irvine, L. 2004. *If You Tame Me: Understanding Our Connection With Animals*. Philadelphia: Temple University Press.

Johnson, T., Garrity, R., and Stallones, L. 1992. Psychometric evaluation of the Lexington Attachment to Pet Scale (LAPS). *Anthrozoös 5*(3): 160-175.

Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika 39*(1): 31-36.

Maiuro, R. D., Eberle, J. A., Rastaman, P., and Snowflake, B. 2008. Pet abuse: Relationships to psychobiology, attachment processes, and domestic violence. In *The International Handbook of AnimalAbuse and Cruelty: Theory, Research, and Application*, 133–153, ed F. R. Ascione. West Lafayette, IN: Purdue University Press.

Matthews, S. and Herzog, H. 1997. Personality and attitudes towards the treatment of animals. *Society & Animals 5*(2): 169-175.

McDonald, S., Vidacovich, C., Ascione, F., Williams, J., and Green, K. 2015. The Children's Treatment of Animals questionnaire: A Rasch analysis. *Anthrozoös* 28(1): 131-144.

McIntosh, S. C. 2004. *The links between animal abuse and family violence, as reported by women entering shelters in Calgary communities*. Canadian Veterinary Medical Association. <http://www.canadianveterinarians.net/uploads/userfiles/files/mcintoshcalgarystudy.pdf>

Pedhazur E. J. and Schmelkin L. P. 1991. *Measurement, Design, and Analysis: An Integrated Approach.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Preacher, K.J., and MacCallum, R.C. 2002. Exploratory factor analysis in behavior genetics research: Factor recovery with small sample sizes. *Behavior Genetics 32*(2): 153-161.

Quinlisk, J. A. 1999. Animal abuse and family violence. In *Child Abuse, Domestic Violence, and Animal Abuse: Linking the Circles of Compassion for Prevention and Intervention*, 168–175, eds. F. R. Ascione and P. Arkow. West Lafayette, IN: Purdue University Press.

Sable, P. (1995). Pets, attachment, and well-being across the life cycle. *Social Work 40*(3): 334-341.

Sanders, C. R. 1999. *Understanding Dogs: Living and Working with Canine Companion Animals.* Philadelphia: Temple University Press.

Schwartz, R., Fremouw, W., Schenk, A., and Ragatz, L. 2012. Psychological profile of male and female animal abusers. *Journal of Interpersonal Violence* 27(5): 846-861.

Signal, T. and Taylor, N. 2007. Attitude to animals and empathy: Comparing animal protection and general community samples. *Anthrozoös* 20(2): 125-130.

Simmons, C. A., & Lehmann, P. 2007. Exploring the link between pet abuse and controlling behaviors in violent relationships. *Journal of Interpersonal Violence 22*(9): 1211–1222.

Strand, E. B., and Faver, C.A. 2005. Battered women's comcern for their pets: A closer look. *Journal of Family Social Work 9*(4): 39-38.

Templer, D., Salter, C., Dickey, S., Baldwin, R., and Veleber, D. 1981. The construction of the Pet Attitude Scale. *Psychological Record 31*: 343-348.

Thompson, K. and Gullone, E. 2003. The Children's Treatment of Animals Questionnaire (CTAQ): A psychometric investigation. *Society and Animals 11*(1):1-15.

Wilson, C. and Netting, E. 2012. The status of instrument development in the human-animal interaction field. *Anthrozoös 25*: s11-s55.

Table 1. Socio-Demographic Characteristics of Women with Pets during Abusive Relationships

Socio-Demographic Characteristic (N = 55)	Percentage
Ethnicity	
European Ancestry (white)	74.5%
First Nations	9.1%
Metis	5.5%
South Asian	1.8%
Arab	5.5%
Latin American	1.8%
Mixed Racial-Ethnic Heritage	1.8%
Sexuality	
Heterosexual	85.5%
Bi-sexual	5.5%
Asexual	3.6%
Other (unspecified)	5.5%
Highest Level of Education Attained	
Less than high school	12.7%
Some high school but (not yet) a high school graduate	12.7%
High school graduate or equivalent	14.5%
Some post-secondary education	52.8%
University graduate	7.3%
Marital Status	
Single (never legally married)	30.9%
Common law partnership	7.3%
Legally married	14.5%
Separated but still legally married or common-law	43.6%
Divorced	1.8%
Widowed	1.8%
Limited in Activities due to Disability or Health Issue	
Yes	42.6%
No	57.4%

Table 2. Item Means, Factor Loadings, and Uniqueness for Retained Items in Partner's Treatment of Animals Scale (PTAS)

Item	Item Mean (1) Never to (5) Very frequently	Factor Loading: Emotional Abuse of Animal	Factor Loading: Threats to Harm Animal	Factor Loading: Physical Neglect of Animal	Factor Loading: Physical Abuse of Animal	Factor Loading: Severe Physical Abuse	Uniqueness
1. Left pet outside longer than I thought safe	1.94	**0.51**	0	0	0	0	0.37
2. Confined pet in an inappropriately small space for an extended period of time	2.04	**0.80**	0	0	0	0	0.19
3. Put pet in a dangerous situation	2.04	**0.50**	0	0	0	0	0.18
4. Chased pet with the intention of harm but did not catch pet	2.08	**0.74**	0	0	0	0	0.11
5. Intimidated or scared a pet on purpose	2.75	**0.61**	0	0	0	0	0.24
6. Threatened to get rid of a pet	2.84	0	**0.65**	0	0	0	0.41
7. Threatened to harm a pet	2.19	0	**0.79**	0	0	0	0.36
8. Threatened to harm other animals (pets of neighbors or family members)	1.82	0	**0.64**	0	0	0	0.54

Item	Item Mean (1) Never to (5) Very frequently	Factor Loading: Emotional Abuse of Animal	Factor Loading: Threats to Harm Animal	Factor Loading: Physical Neglect of Animal	Factor Loading: Physical Abuse of Animal	Factor Loading: Severe Physical Abuse	Uniqueness
9. Threatened to harm or get rid of a pet to make me do something	1.77	0	**0.51**	0	0	0	0.44
10. Refused to feed a pet	2.18	0	0	**0.85**	0	0	0.14
11. Refused to provide water for a pet	1.98	0	0	**0.88**	0	0	0.16
12. Refused to provide pet with medicine for an ongoing health condition	1.88	0	0	**0.32**	0	0	0.09
13. Smacked a pet	2.33	0	0	0	**0.82**	0	0.29
14. Kicked a pet	2.15	0	0	0	**0.89**	0	0.15
15. Forced a pet to fight another animal	1.13	0	0	0	**0.34**	0	0.60
16. Threw an object at a pet	2.10	0	0	0	**0.73**	0	0.29
17. Hit a pet with an object	1.90	0	0	0	**0.60**	0	0.30
18. Broke a pet's bones	1.22	0	0	0	0	**0.63**	0.02
19. Drowned a pet	1.20	0	0	0	0	**0.82**	0.05
20. Injured a pet	1.54	0	0	0	0	**0.94**	0.07
21. Killed a pet	1.38	0	0	0	0	**0.69**	0.45
Eigenvalues (% variance explained)		2.06	1.73	1.79	2.51	2.45	

Note: Extraction Method: Principle Factor Analysis.

Table 3. Summary Statistics for Retained Factors in Partner's Treatment of Animals Scale (PTAS)

Factor	N	Eigenvalue (Pre-Rotation)	Eigenvalue (Post rotation)	Proportion of Variance	Reliability Coefficient	Kaiser-Meyer-Olkin (KMO)	Bartlett's test of sphericity
Emotional Abuse of Animal	43	3.78	2.06	54.0%	0.94	0.83	212.5***
Threats to Harm Animal	48	2.27	1.73	76.3%	0.80	0.72	80.08***
Physical Neglect of Animal	42	4.00	1.79	36.0%	0.91	0.71	239.4***
Physical Abuse of Animal	41	3.17	2.51	78.5%	0.85	0.81	123.1***
Severe Physical Abuse	43	3.64	2.45	57.1%	0.88	0.70	273.9***

Note: Factors with overall KMO scores less than 0.70 were dropped from the final scale.