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Addressing Barriers to Action: Increasing Cat Guardians' Compliance with Professional Environmental Enrichment Advice

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ABSTRACT

Guardians of domestic cats may seek advice from a veterinarian or professional cat behavior advisor to address problematic cat behaviors. This advice typically involves a degree of environmental enrichment, which guardians sometimes experience as an encroachment on their personal lives and living environment. This may explain why compliance with enrichment advice is often poor and problem behaviors persist. The aim of this study was to investigate how advice compliance can be increased by addressing guardians' barriers to action. Using the Theory of Planned Behavior as a theoretical foundation, we differentiated between motivational- and capacity-related perceived behavioral control (PBC) to better understand the root of guardians' implementation resistance. We argue that motivational PBC is a more malleable construct than capacity PBC and tested the hypothesis that motivational PBC can increase when guardians experience social pressure when other guardians hold positive beliefs about environmental enrichment (subjective norm). We conducted a survey of 221 cat guardians who were asked to imagine they had sought and received enrichment advice to address their cat's behavioral problems. The positive or negative beliefs and actions of other cat guardians with respect to environmental enrichment were varied experimentally as a means of influencing the subjective norm. Results confirmed the prediction that exposure to others' positive enrichment beliefs (versus negative enrichment beliefs) results in a more positive subjective norm with respect to enrichment, which subsequently increases motivational PBC and compliance intention. Although compliance intention was also predicted by capacity PBC, capacity PBC was not influenced by subjective norm, as expected. This study is the first to differentiate between motivational- and capacity-related PBC as barriers to action, which proved fruitful. Understanding the nature of clients' implementation resistance helps practitioners select the most appropriate technique to address barriers to action. We offer several practical recommendations to this end.

KEYWORDS

Cats; environmental enrichment; human–animal interaction; implementation resistance; perceived behavioral control; treatment compliance

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According to the 2021–2022 APPA National Pet Owners Survey (APPA, 2022), almost half of all US households own one or more cats. Cat guardians, as compared with dog guardians, less often take their animals to a veterinarian, spend less time with their animal, spend less money on medical care and related products and services for their animal, and are less inclined to follow the recommendations of veterinarians (Kirk, 2019; Lue et al., 2008). Moreover, guardians' households are often poorly attuned to the needs of their cats, which is a leading cause of chronic stress among the animals (Amat et al., 2016; Grigg & Kogan, 2019; Windschnurer et al., 2022). It is therefore hardly surprising that between 47% (Grigg & Kogan, 2019) and 64% (Strickler & Shull, 2013) of cat guardians report that their animal exhibits one or more behaviors that they experience as problematic, such as aggression, furniture scratching, or urinating in the house. And yet, most guardians never seek professional advice to address these problems (Howell et al., 2016), and among those that do, poor treatment compliance is commonplace (Casey & Bradshaw, 2008). Especially advice that requires greater personal concessions has a low chance of being adopted (Alho et al., 2016) as guardians claim to be unable to perform the required actions (Van Leeuwen et al., 2022).

The aim of the current study was to investigate how compliance with professional advice to address behavioral problems among cats can be increased. To this end, we focused on cat guardians' perceptions of the degree to which they are in control over the actions required to adopt the advice: is it a matter of not being *able* to, or not being *willing* to make the required changes? Using the Theory of Planned Behavior (Ajzen, 1991) as a theoretical framework, we conducted a survey in which we investigated how guardians' perceptions of the degree to which they are in control of the required actions affect their compliance intentions. As outlined in the following, we differentiated between control factors related to ability and control factors related to motivation. This distinction is important because motivation-related control factors may be increased by different intervention techniques than ability-related control factors, which offers useful insights for practitioners who wish to increase their clients' advice compliance. We tested the notion that motivation-related control factors are more susceptible to social pressure from other cat guardians than ability-related control factors. The study of factors influencing people's compliance with professional advice to tackle behavioral problems in cats is valuable for two reasons. Firstly, the welfare of companion animals is highly dependent on their guardians' willingness to heed advice from veterinarians and cat behavior advisors. Secondly, as behavioral problems in cats can be a source of stress for their guardians, the lives and comfort of cat guardians can be greatly improved if these behavioral problems are addressed appropriately.

Some feline behaviors may be experienced as problematic by the cat's guardian, even though they are perfectly natural from the cat's perspective (Camps et al., 2019). Most guardians, for example, do not like it when their cat scratches their furniture, but scratching is important for cats to keep their claws in shape and for scent marking (Rochlitz, 2005). After medical causes for problem behaviors are excluded, the most likely cause is that the cat's physical and social environment is barren and insufficiently adapted to its needs (Amat et al., 2016; Halls, 2018). Ellis and colleagues (2013) listed

several elements required for a healthy feline environment, including the provision of multiple separate resources (e.g., food, water, litter boxes) and opportunities for play and predatory behaviors. An environment in which one or more of these elements is lacking causes stress because it does not allow the cat to exhibit its natural behavior. There is a growing body of research showing that barren environments are associated with behavioral problems in cats (e.g., Loberg & Lundmark, 2016; Strickler & Shull, 2013; Vinke et al., 2014).

Cat guardians seeking help for their companion's problematic behaviors are most likely to consult a veterinarian, although the field of trained cat-behavior advisors is growing (Howell et al., 2016; Karn-Buehler & Kuhne, 2022; Turner, 1997). If the professional concludes that the problems are related to a social or physical environment that is insufficiently adapted to the cat's needs, the guardian is likely to receive advice that involves a degree of environmental enrichment: a modification of their life and household to better meet the cat's needs, such as adding litter boxes and spending more time playing with their cat (Ellis, 2009; Halls, 2018). But herein lies a problem. Cat guardians often perceive such "catification" as an encroachment on their lives and personal living space, and they may claim that they simply do not have the means to adopt the recommended advice and make the required changes (Van Leeuwen et al., 2022). This may explain why enrichment advice to address behavioral problems is often poorly followed. Indeed, lack of ability or control is a frequently cited reason for poor compliance (e.g., Khor et al., 2021; McLeod et al., 2015). Van Leeuwen and colleagues (2022) experimentally manipulated the degree to which advice aimed to address feline behavioral problems required minor or major changes to cat guardians' living environment. When the advice required only minor changes, guardians reported finding it easier to adopt the recommended changes and were much more intent on complying with the advice than when it required major changes.

The Theory of Planned Behavior

A theoretical framework that can help to understand guardians' compliance with professional advice is the Theory of Planned Behavior (Ajzen, 1991). In short, the theory proposes that actions are predicted by the intention to perform that action. Intention, in turn, is predicted by three interrelated factors: perceived behavioral control (PBC), subjective norm, and attitude. *Perceived behavioral control* is the subjective perception of the ease or difficulty of the behavior – such as a cat guardian's belief that it is difficult, if not impossible, to have the required number of litter boxes ($n + 1$) spaced out over multiple rooms in multi-cat households. *Subjective norm* refers to general social pressure from others to perform the behavior. For example, some cat guardians may go to great lengths to enrich their cat's living environment and believe this is the right thing to do. As a result, other cat guardians may experience social pressure to do the same. *Attitude* in this case refers to a guardian's overall positive or negative evaluation of the action(s) required to comply with the professional's advice. The combined value of these three factors in predicting behavior(al) intentions has been established in numerous contexts, including human–cat interactions (Gunaseelan et al., 2013; Khor et al., 2018; Khor et al., 2021; MacDonald et al., 2015; Van Eeden et al., 2021; Van Leeuwen et al., 2022).

Perceived Behavioral Control

The focus of the current study was on PBC as a barrier to advice compliance. Cat guardians often cite an inability to perform the required actions as a reason for poor compliance. However, PBC is a multi-faceted construct, and in some respects more malleable than it appears. This is good news for veterinarians and cat-behavior advisors because understanding how PBC can be changed opens up avenues for increasing advice compliance. For example, previous researchers have differentiated between individuals' beliefs that they have the right skills, confidence, and ability to perform the required action and their beliefs that performance of the required action is determined by external factors over which they have little control (e.g., Kidwell & Jewell, 2003; Manstead & Van Eekelen, 1998; Trafimow et al., 2002). Such distinctions illustrate that some of the barriers people experience may indeed be insurmountable but that others can be tackled.

We reasoned that some of the barriers experienced by guardians to following enrichment advice may be more motivational in nature, while others may be beyond their capacity to address. Motivational barriers refer to guardians' feeling that they are unable to adopt certain changes because they require too many personal concessions. Strictly speaking, guardians are still able to comply, but they consider the required actions a step too far. Indeed, Ajzen (1991) also acknowledged that PBC is partly motivational in nature, such that people high in PBC show more persistence in overcoming barriers to action than people low in PBC. We will refer to this as *motivational PBC*. Note that motivational PBC is not motivation per se – it is still a guardian's perception that they cannot perform the required action. However, the barriers are subjective and rooted in guardians' beliefs of what their homes and lives should be. Other barriers, however, may be related to physical restrictions or to a lack of resources or actual control to execute the required actions. These factors are often more fixed and difficult to change. For example, for guardians sharing their small one-bedroom apartment with three cats, it is beyond their capacity to provide four food bowls, water bowls, and litter boxes spaced out across different rooms. We will refer to these barriers as *capacity PBC*.¹ The practical value of distinguishing motivational PBC from capacity PBC is that professionals may be better able to address resistance to advice if they know the true nature of this resistance. Moreover, motivational PBC is arguably more malleable and easier to address with relatively simple techniques than capacity PBC. There is some evidence from prior research to support the usefulness of differentiating between capacity-related and motivational barriers to action (e.g., Leßmann & Masson, 2015; McLeod et al., 2015; Michie et al., 2011; Scannell et al., 2020).

The primary aim of the current study was to investigate the notion that motivational PBC and capacity PBC each serve as unique predictors of advice compliance in addition to attitude and subjective norm. In addition, since motivational PBC is proposed to be a more malleable construct than capacity PBC, it is of interest to look into factors that can affect motivational PBC. In the Theory of Planned Behavior, subjective norm, PBC, and attitude are all proposed to influence each other as well as behavioral intentions (Ajzen, 1991). Although few studies have examined these intercorrelations, a study by Leßmann and Masson (2015) provides indirect evidence for a correlation between

motivational PBC and subjective norm. They found that subjective norm predicted perceived freedom of choice – a construct closely related to PBC. This suggests that social pressure can influence people's motivation to overcome barriers to action as reflected by PBC. Indeed, to the extent that cat guardians' barriers represent personal resistance to enrichment actions that are deemed too much work or too invasive, pressure from other cat guardians may subtly shift their perceptions of how much work is "too much" or which enrichment measures are "too invasive." Note that this process taps into motivational barriers to action – not capacity-related barriers. We therefore propose that a positive subjective norm with respect to environmental enrichment can increase motivational PBC to the extent that it changes cat guardians' perceptions of which enrichment actions they still consider within their control. No such relationship is expected with respect to capacity PBC.

In order to examine the causal relationship between subjective norm and motivational PBC, we experimentally induced variance in subjective norm by exposing cat guardians to the beliefs and actions of other guardians with respect to enrichment. Guardians who are told that other guardians consider feline environmental enrichment a desirable action in which they actively engage in themselves, should develop a stronger subjective norm favoring environmental enrichment than guardians who are told that other guardians find environmental enrichment undesirable. This subjective norm, in turn, should positively affect guardians' motivational PBC (but not capacity PBC) and ultimately increase advice compliance.

Overview of Study and Hypotheses

We investigated the degree to which compliance intention is predicted by motivational PBC, capacity PBC, as well as attitude and subjective norm in an online survey of cat guardians. We experimentally varied the beliefs of other guardians with respect to environmental enrichment (positive or negative) in order to examine the notion that subjective norm (as influenced by the experimentally varied beliefs of other guardians) affects compliance intention through motivational PBC. Following a procedure employed by Van Leeuwen and colleagues (2022), guardians were asked to envision that they had sought help and received enrichment advice from a professional cat-behavior advisor to address their cat's problematic behaviors. Half of the participants read that other cat guardians held positive beliefs about environmental enrichment and engaged in this behavior themselves, whereas the other half read that other guardians were skeptical about enrichment and did not engage much in this behavior. Motivational PBC, capacity PBC, attitude, subjective norm, and compliance intention were measured.

We tested the following predictions:

Hypothesis 1: Motivational PBC, capacity PBC, attitude, and subjective norm, will each have a unique positive relationship with compliance intention.

Hypothesis 2: Subjective norm will be positively related to motivational PBC but not to capacity PBC.

Hypothesis 3: Guardians who are informed that other guardians support and actively engage in environmental enrichment will report a more positive subjective norm about environmental enrichment than guardians who are informed that other guardians consider environmental enrichment undesirable and do not engage in it much themselves. This pro-enrichment subjective norm, in turn, will positively influence the intention to comply with enrichment advice by increasing motivational PBC. In other words, we predicted an indirect effect (mediation) of others' enrichment beliefs (negative or positive) on compliance intention through subjective norm and motivational PBC, in that order.

Methods

Ethical Approval

The study was approved by Leiden University ethics committee (2020-06-12-E.A.C. van Leeuwen-V3-2478).

Participants and Design

Dutch guardians of one or more cats were recruited via various social media platforms and asked to complete a short online questionnaire on a voluntary basis. Five participants were excluded because they reported not owning a cat, and one was excluded for owning 15 cats, which can be indicative of a professional cat service (e.g., cattery). The remaining 221 participants (182 females, 36 males, 2 "other," 1 non-reported; $M_{\text{age}} = 36.65$ years, $SD = 13.76$, 4 non-reported) were randomly distributed across one of two conditions (others' enrichment beliefs: negative [$n = 108$] vs. positive [$n = 113$]). There were no differences between conditions in participants' sociodemographic and background variables (see Table 1).

Materials and Procedure

A complete overview of the materials can be found online in a supplemental file. After providing informed consent, participants were asked to imagine a situation in which they had two unrelated cats in their household that remained indoors. Although the

Table 1. Overview of demographic and background variables across conditions (percentages or means with standard deviations).

	Others' enrichment beliefs		Overall
	Negative ($n = 108$)	Positive ($n = 113$)	
Participant gender (1 non-reported)	21% male, 79% female 1% other	12% male, 87% female 1% other	16% male, 83% female, 1% other
Participant age (years; 4 non-reported)	36.87 (14.00)	36.45 (13.59)	36.65 (13.76)
Number of cats	1.79 (1.18)	1.84 (0.89)	1.81 (1.04)
Litter boxes per cat	0.96 (0.48)	0.91 (0.49)	0.93 (0.48)
Scratch posts per cat	1.59 (1.19)	1.50 (1.19)	1.55 (1.19)
Food bowls per cat	1.34 (0.63)	1.27 (0.60)	1.30 (0.62)
Water bowls per cat	1.29 (0.77)	1.19 (0.63)	1.24 (0.70)

Note: Independent samples t -tests or χ^2 analysis (gender) showed that there were no significant differences between conditions (all p -values > 0.20).

cats initially got along well, as they grew older they began to show problematic behavior, such as scratching the furniture, urinating in the house, and fighting with each other. After a visit to the veterinarian showed that there was no medical cause for this behavior, a professional cat-behavior advisor was contacted. The advisor explained that the most likely cause of the behavior in this situation was stress, caused by insufficient adaptation of the cats' living environment to their needs. To address the problem, the advisor recommended modifying the environment by installing scratch posts in all the rooms, placing at least three litter boxes in different rooms in the house and to clean them twice a day, by placing food and water bowls (spaced out and not next to a litter box) in at least three different rooms in the house, by feeding the cats wet cat food at two fixed times a day, spread out on at least three different plates at some distance from each other, to add high vantage spots in the house, and to play at least 20 min each day separately with each cat.² These recommendations are in line with the five pillars of a healthy feline environment (Ellis et al., 2013).

Next, participants were informed of the experiences of other cat guardians who had received similar advice, which was ostensibly posted on an independent website. This description varied depending on experimental conditions. Participants in the *positive others' enrichment beliefs condition* read that most guardians end up taking a lot of measures to adapt their home to their cats because they consider the cats' living comfort to be the most important thing. The general opinion on the website is that it is good to adapt the home to the cats as much as possible. The importance of the cats in the house is paramount. Participants in the *negative others' enrichment beliefs condition* read that most guardians end up taking few measures to adapt their home to their cats because they consider their own living comfort to be the most important thing. The general opinion on the website is that it is not good to adapt the house too much to the cats. The interests of the people in the house come first.

Questionnaire

In the subsequent questionnaire, unless indicated otherwise, all questions were presented as statements preceded by the question "To what extent do the following statements apply to you?" Answers were assessed on 5-point scales (1 = not at all, 5 = very much). Scores were created by averaging responses to the items. All questions except those assessing age and gender used forced response, and as a result they do not have missing values.

Attitude toward adopting the advice was assessed with four items adapted from Ajzen (2006; $\alpha = 0.89$; e.g., "I would consider it good to follow the advice in full"). Subjective norm was assessed with seven items ($\alpha = 0.80$; e.g., "Most other cat guardians would follow the advice fully"). Compliance intention was assessed with four items from Van Leeuwen et al. (2022), supplemented with one additional item ($\alpha = 0.89$; e.g., "I would plan to follow the recommended actions fully"). Motivational PBC was measured with eight items developed by the authors ($\alpha = 0.89$; e.g., "It is going too far for me to follow all the recommended measures, even if I could," reverse coded), as was capacity PBC ($\alpha = 0.74$; e.g., "I do not have sufficient resources [such as money, time and space] to implement the recommended measures," reverse coded). For ease of interpretation,

both PBC measures were reverse coded such that higher scores indicate higher PBC. The effectiveness of the experimental manipulation of others' beliefs was checked with three separate items that referred to the text at the beginning of the study ("... other cat owners adapt their home very much to their cats"; "... other cat owners think it is important that their home meets the needs of their cats"; "... other cat owners think that the comfort of the people in the house comes first – above that of the cats"). Lastly, participants were asked to indicate the number of cats, litter boxes, scratch posts, food bowls, and water bowls or fountains in their house, as well as their own age and gender (optional). Upon completion of the questionnaire, participants were thanked and debriefed.

Results

For the statistical analyses reported below, all assumptions were met, or the tests were robust against violations of their assumptions (e.g., due to equal sample sizes across conditions).

Manipulation Check

Independent samples *t*-tests revealed that participants in the positive others' enrichment beliefs condition, compared with participants in the negative others' enrichment beliefs condition, more strongly felt that other owners strongly adapted their homes to their cats (positive beliefs: $M = 3.46$, $SD = 0.99$; negative beliefs: $M = 2.47$, $SD = 1.07$, $t_{(219)} = 7.12$, $p < 0.001$) and that other guardians consider it important that their home meets the needs of their cats (positive beliefs: $M = 3.81$, $SD = 0.85$, negative beliefs: $M = 2.77$, $SD = 1.08$, $t_{(219)} = 7.93$, $p < 0.001$). Moreover, those in the positive others' enrichment beliefs condition less strongly felt that other cat guardians think that the comfort of the people in the house comes above that of the cats (positive beliefs: $M = 2.62$, $SD = 1.03$; negative beliefs: $M = 3.70$, $SD = 1.06$, $t_{(219)} = -7.71$, $p < 0.001$). These results indicate that the manipulation of others' beliefs about feline environmental enrichment was successful.

Hypotheses Testing

To examine hypothesis 1, in which we predicted that attitude, subjective norm, motivational PBC, and capacity PBC will each uniquely predict compliance intention, we conducted a multiple regression analysis in which compliance intention was regressed on these four predictors. The equation was significant ($F_{(4, 216)} = 94.46$, $p < 0.001$) and explained 63% of the variance in compliance intention. The unstandardized regression weights are depicted in [Figure 1](#). In support of hypothesis 1, attitude, subjective norm, motivational PBC, and capacity PBC each uniquely and positively predicted compliance intention.

In hypothesis 2, we expected that subjective norm will be positively associated with motivational PBC but not with capacity PBC. [Table 2](#) provides an overview of the

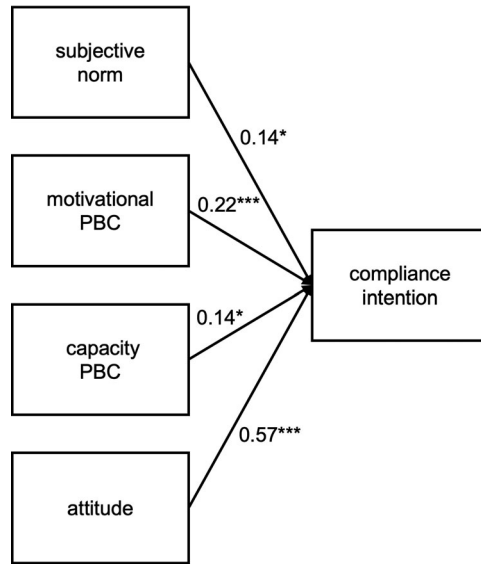


Figure 1. Overview of predictors of compliance intention. Weights are unstandardized regression coefficients.

intercorrelations. As predicted, subjective norm was significantly and positively correlated with motivational PBC but not with capacity PBC.

We predicted, in hypothesis 3, that others' enrichment beliefs will have a positive effect on subjective norm and that this subjective norm, in turn, would positively influence compliance intention through motivational PBC. An independent samples *t*-test confirmed that participants in the positive others' environmental beliefs condition reported a more positive subjective norm about feline environmental enrichment ($M = 3.15$, $SD = 0.73$) than participants in the negative others' environmental beliefs condition ($M = 2.94$, $SD = 0.70$, $t_{(219)} = 2.18$, $p = 0.03$). We subsequently conducted a PROCESS mediation analysis using model 6 (Hayes, 2017; 5000 bootstraps) to test the predicted indirect effect of others' enrichment beliefs on compliance intention through subjective norm and motivational PBC. Others' enrichment beliefs were included as an independent variable, subjective norm and motivational PBC as mediators, and compliance intention as a dependent variable. Capacity PBC was included as covariate to more accurately examine the unique effect of motivational PBC by controlling for variance shared with capacity PBC. The mediational pathways are depicted in Figure 2. In support of hypothesis

Table 2. Scale means, standard deviations, and correlations between theoretical constructs.

	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Motivational PBC	3.63	0.99	–				
2. Capacity PBC	3.67	0.76	0.46***	–			
3. Attitude	3.53	0.93	0.64***	0.38***	–		
4. Subjective norm	3.04	0.72	0.29***	0.13 ^{ns}	0.27***	–	
5. Compliance intention	3.31	0.98	0.65***	0.43***	0.76***	0.33***	–

Note: PBC = perceived behavioral control. *** $p < 0.001$. ns = not significant.

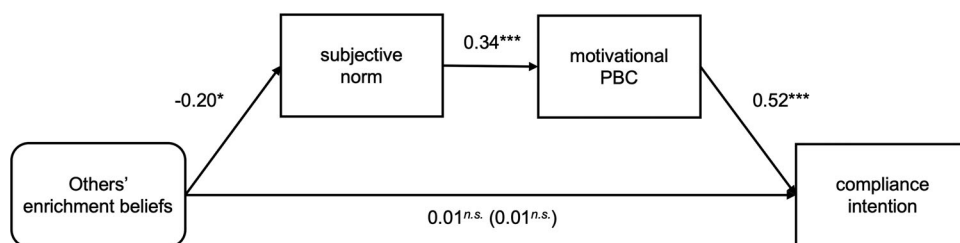


Figure 2. The indirect effect of others' enrichment beliefs on compliance intention as mediated by subjective norm and motivational PBC. Weights are unstandardized regression coefficients.

3, the mediation via subjective norm and motivational PBC (in that order) was significant (boot indirect effect = 0.04, $SE = 0.02$, 95% CI $[-0.09, -0.00]$). Others' enrichment beliefs directly influenced subjective norm and indirectly influenced compliance intention via subjective norm and motivational PBC. Note that the absence of a direct effect of others' enrichment beliefs on compliance intention does not preclude a test for mediation (because different mediators can create the same magnitude of effect and level each other off; Preacher et al., 2007). We also explored an alternative mediation of others' enrichment on compliance intention via subjective norm and capacity PBC, with motivational PBC included as covariate. However, as anticipated, the indirect effect of others' enrichment beliefs on compliance intention via subjective norm and capacity PBC (in that order) was not significant (boot indirect effect = 0.00, $SE = 0.00$, 95% CI $[-0.01, 0.01]$). Taken together, these findings show that the enrichment beliefs of other guardians affected participants' subjective norm with respect to environmental enrichment, which subsequently influenced their motivational PBC and their intention to comply with the advice, as predicted.

Discussion

The welfare of companion animals is contingent on their guardians' willingness to seek professional advice for (behavioral) problems and to follow up on the professional's recommendations. Since advice compliance is often problematic (Casey & Bradshaw, 2008; Lue et al., 2008), the current study aimed to investigate to what extent cat guardians' PBC over the execution of the advice influences their compliance. Sometimes guardians' claim that they are unable to comply with advice in reality means that they do not want to make the required concessions. We therefore made a unique distinction between capacity and motivational PBC. Since motivational aspects of PBC are susceptible to different intervention techniques than capacity-related aspects of PBC, distinguishing between these two components is particularly important for practitioners who want to ensure that their clients follow their recommendations.

We measured cat guardians' attitude toward the advice as well as general social pressure from others to engage in environmental enrichment (i.e., subjective norm), and observed direct positive relationships between attitude and subjective norm on the one hand, and guardians' intention to comply with environmental enrichment

advice on the other hand. As such, these findings complement a long line of research examining the Theory of Planned Behavior in a wide range of domains, including human–animal relations (e.g., Pratama & Yuliati, 2021; Van Eeden et al., 2021; Van Leeuwen et al., 2022). They are also in line with other research investigating social norms on compliance (e.g., Hogg & Reid, 2006; Van Kleef et al., 2019). People follow social norms to gain approval from others, particularly from those who are important to them (Cialdini & Goldstein, 2004). As the current data show, cat guardians who were told that other guardians support and actively engage in environmental enrichment reported a subjective norm more favorable to environmental enrichment compared with guardians who were told that others are skeptical about enrichment and do not engage in this much themselves. This pro-enrichment subjective norm, in turn, positively influenced intentions to comply with enrichment advice by increasing motivational PBC.

Separating motivational PBC aspects from capacity PBC aspects proved valuable, as both constructs uniquely contributed to the prediction of guardians' willingness to follow the recommendations of a professional cat behavior advisor. Moreover, motivational PBC, but not capacity PBC, was influenced by guardians' subjective norms with respect to environmental enrichment. The value of PBC in the prediction of behavioral intention is well established (Armitage & Conner, 1999), and prior work by Leßmann and Masson (2015) supports the importance of looking specifically at motivational aspects of PBC. The current work takes these insights a step further by studying how subjective norms influence motivational and capacity PBC. We reasoned and found that subjective norms would influence motivational PBC but not capacity PBC. Social norms influence people's understanding of the world around them, which makes them more powerful in situations in which one is uncertain what to do or believe (Abrams & Hogg, 1990). This explains why subjective norms affect motivational PBC: guardians' beliefs of what their home and lives should look like (e.g., in terms of how much cat-related paraphernalia their house should contain) are subjective and sensitive to the opinions and actions of others.

Limitations and Suggestions for Future Research

There are a few limitations that need to be addressed. First, although the experimental manipulation of others' beliefs about environmental enrichment indirectly influenced compliance intention through increasing subjective norms and motivational PBC, it did not have a direct effect on compliance intention. The experimental manipulation served its purpose by demonstrating the causal link between subjective norms and compliance intention, but readers with a focus on practical applications should be cautious about using the manipulation in its current form as a sole technique for increasing advice compliance. We presented participants with the beliefs and actions of other cat guardians, assuming that these other guardians mattered to them. However, whereas some may identify strongly as a cat guardian, others may not, rendering the opinions of other guardians inconsequential (Ajzen, 1991). Future research could invest in finetuning the manipulation to create a more powerful intervention tool: for example, by investigating which social groups matter most to guardians or which individual group members exert the strongest social influence.

Second, the current study employed a hypothetical scenario to investigate compliance intentions, which could be criticized for lacking external validity. However, a scenario approach is particularly useful to examine causal effects of variables that are difficult to manipulate with a sufficiently large sample size and within a reasonable time frame (Aguinis & Bradley, 2014). Hypothetical approaches such as the current one have proven fruitful in previous investigations of compliance intentions among cat guardians (Khor et al., 2021; Van Leeuwen et al., 2022). To ensure participants would find it easy to immerse themselves in the situation, we only used current cat guardians as participants.

Third, participants in this study were predominantly female Dutch citizens, which may limit the generalizability of our findings to other, more diverse, samples. For example, previous research observed that women were more interested in animal causes (e.g., Kruse, 1999). Previous research also found differences between nations in the value attached to animal welfare (e.g., Sinclair & Phillips, 2017). It is therefore important for future studies to expand the scope to other countries, with varying demographics and cultural values.

Practical Recommendations

The current research offers a useful foothold for animal practitioners interested in increasing their clients' motivation to follow up on their advice. Of particular note is the importance of differentiating between motivational PBC and capacity PBC. Veterinarians and cat behavior advisors regularly encounter guardians who list perceived difficulty as the primary reason for non-compliance. As a professional, it is important to realize that such perceived difficulty is subjective and possibly motivational in nature, but at the same time acknowledge that guardians could also see capacity constraints that limit their perceived ability to fully adopt the advice. Automatically assuming that "I can't" means "I don't want to" could result in inappropriate pressure. Conversely, taking an "I can't" as an invitation to show how the advice *can* be implemented when in reality the guardian doesn't *want* to take the required steps, could easily backfire. In both cases, the professional's actions (well-intended though they may be) may negatively affect the professional–client relationship.

So, how can a professional differentiate between perceived capacity-related and motivational barriers to advice compliance? We suggest that a good professional–client relationship is key to finding out why clients claim being unable to comply with advice. Clients may be more willing to admit to an advisor or veterinarian they know and trust that they lack resources or that they find certain recommended measures too intrusive to incorporate. Indeed, research in the human clinical domain shows that a good alliance is the single most important factor for general patient compliance (Hack & Chow, 2001). Lue and colleagues (2008) found that the strength of the bond between a veterinarian and a pet guardian has a direct impact on guardians' loyalty to the veterinarian and their advice. This veterinarian–guardian bond is directly affected by the veterinarian's communication skills. Other studies, too, point to the pivotal role of communication skills (Pun, 2020). Good communication skills not only help to establish trust but are also important to find out what clients mean when they claim to be unable to incorporate the professional's advice. Once it is established if the perceived barriers are more motivational- or more capacity-related in nature, professionals can tailor their next steps to better address these barriers.

Notes

1. This differentiation bears some resemblance to the distinction between self-efficacy and control as two components of PBC made in previous studies (e.g., Armitage & Conner, 1999). However, whereas a lack of control to perform the behavior could be construed as a capacity-related barrier, self-efficacy is synonymous with the general construct PBC in the original formulation of the Theory of Planned Behavior (Ajzen, 1991).
2. Participants were asked, in the subsequent questionnaire, to rate the credibility of the advisor on two items ("To what extent would you describe the person who gave you advice as '... an expert?', '... professional?'"; 1 = not at all, 5 = very much; $r = 0.80$). An overall mean well above the scale midpoint revealed that the advisor was judged to be credible ($M = 3.51$, $SD = 0.90$, $t_{(220)} = 8.45$, $p < 0.001$), which indicates that guardians could not easily discard the advice owing to a lack of source credibility. Participants were also asked to rate the perceived severity of the advice on three bipolar items ($\alpha = 0.83$; e.g., 1 = severe, 5 = mild, reverse coded). The recommended measures were judged as moderately severe – around the scale midpoint ($M = 3.00$, $SD = 0.95$, $t_{(220)} = -0.05$, ns). This suggests that the advice was sufficiently severe to raise barriers but not so severe as to make implementation unfeasible.

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No potential conflict of interest was reported by the authors.

Data Availability Statement

The data that support this study are available upon reasonable request from the corresponding author. The data are not publicly available due to privacy restrictions.

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