

Toward Measuring Proactivity in Person-Environment Transactions in Late Adulthood:

The Housing-related Control Beliefs Questionnaire

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Abstract

Both a life-span developmental control perspective as well as an environmental gerontology view, particularly Lawton's notion of environmental proactivity, served as the theoretical background to suggest a new dimension of domain-specific, namely housing-related control beliefs. The newly developed 23-item Housing-related Control Beliefs Questionnaire (HCQ) is based on the widely used dimensions of Internal Control, External Control: Powerful Others, and External Control: Chance. In two studies using a sample $N = 485$ (66-69 years) and a sample of $N = 107$ older adults (65-91 years), we examined the psychometric quality of the questionnaire as well explored its relation with socio-structural variables, general control beliefs, and a set of housing-related aspects. Psychometric results indicate satisfactory levels of internal consistency and retest stability in all three scales of the instrument and factor analysis supported the theoretically expected three-factor solution. Also, HCQ's external control subscales were correlated with higher age, lower education, and lower income and the correlational pattern between the HCQ and a general control measure was substantial and as theoretically expected. Relations between the HCQ and objective and subjective housing-related variables were existing, but tended to be low in size. These preliminary findings suggest the potential usefulness of the HCQ as a measure to address environmental proactivity in late adulthood.

Control beliefs have long been identified as important contributors to psychological well-being and successful aging in general (Abeles, 1991; Baltes, & Baltes, 1986; Bandura, 1995; Lachman, 1993; Schulz & Heckhausen, 1997; Seligman, 1991). They are also of central importance for the achievement and maintenance of independence and autonomy well into old age (Reich & Zautra, 1990; Skinner, 1995). In addition, across the life-span control beliefs become increasingly important for both coping with everyday stress and with key transitions (Brandtstädter & Renner, 1990; Moen & Wethington, 1999). However, although general control beliefs are good predictors of omnibus measures of quality of life, they tend to be less useful to predict how people cope with stressors and challenges in particular domains of everyday life (Lachman, 1986). Furthermore, life-span trajectories of control might be quite different when domain-specificity is taken into consideration. For example, age-related increases exist for overall control over work, control over finances, and control over marriage, whereas decreases exist for control over relationships with children, and control over one's sex life (Lachman, & Weaver, 1998). Results from cross-sectional and longitudinal studies on domain-specific control beliefs in the domains of health and intellectual functioning suggest stable internal control beliefs and increasing external control beliefs as people age, while no consistent relationship with gender has been reported (Clark-Plaskie & Lachman, 1999; Lachman, Ziff, & Spiro, 1994).

In terms of the context, in which aging takes place, the private home becomes increasingly central to everyday life as people age. Findings from research on leisure time activities and from studies on the everyday life of the elderly suggest a reduction of the action range especially in very old age (Moss & Lawton, 1982). Older people spend more time at home than younger people do, particularly when they suffer from competence losses. According to data from the Berlin Aging Study (BASE), about 80% of the activities of daily living take place at home (Baltes, Maas, Wilms, Borchelt,

& Little, 1999). However, the home environment has strangely been neglected in current research efforts to develop an essential set of domain-specific measurement devices. Given the trias that: (1) "establishing satisfactory physical living arrangements" is a major developmental task in old age (Havighurst, 1972, p. 113), (2) staying put is among the highest personal priorities of older people (Lawton, 1985; Scheidt, 1998); and (3) striving for control has advantages for all species capable of influencing their environment (Schulz & Heckhausen, 1999), examining age-related differences and changes in housing-related control beliefs will improve our understanding of the mechanisms underlying the achievement and maintenance of autonomy and well-being in old age.

Crucial from the perspective of environmental gerontology is the assumption that highlighting housing-related control beliefs in later adulthood offers as well theoretical potential in that it might provide a major conceptual link between the (physical) environment and the aging person. Housing has traditionally been addressed within environmental gerontology as a major example of the environmental impact on aging (e.g., Parmelee & Lawton, 1990; Wahl, 2001). From this perspective, a good fit between a person's needs and competencies and the environmental conditions and amenities at home is a particularly important challenge as people age (Carp & Carp, 1984; Lawton, 1999). However, most research in the field focuses primarily on the role of environmental conditions, such as objective housing amenities, and on the potential to modify the environment to help older people to stay put and to live independently as long as possible (e.g., Lanspery & Hyde, 1997; Pynoos, 1995; Steinfeld & Danford, 1999). This focus on the environmental component of person-environment transactions neglects to some extent the fact that persons themselves can be agents in modifying environments in order to live independently. Powell Lawton has put major emphasis on this basic insight for a "good" life in old age, by adding to his model of environmental docility the concept of

environmental proactivity (Lawton, 1983, 1989a). "This hypothesis suggests that the greater the competence of the person, the more likely the person's needs and preferences will be successfully exercised to search the environment for resources to satisfy the needs (...). In fact, the essence of a proactively created environment is its dynamic, temporally changing quality and its inability to be separated from the user. Examples of such transactional environmental resources are the cognitive map, the perceived or cognitively organized environment, the local amenities that are used, the state of maintenance of a home, the way it is furnished (...) and so on" (Lawton, 1989a, p. 18f). A good fit between the environment and the individual cannot thus be guaranteed by a flexible or supportive environment alone. Instead, it is also important to acknowledge the role of proactive attitudes of the individual towards the environment, seen from a personality point of view (Lawton, 1998; Slangen-de Kort, 1999). The construct of housing-related control beliefs intends to directly address this specific agency of older adults to deal with environmental press and richness, to take the terms of Lawton (1987), and might thus further qualify and extend the available literature on environmental control (e.g., Schulz & Brenner, 1977, Slangen-de Kort, Midden, & Wagenberg, 1998; Timko & Moss, 1989). Thus, housing-related control beliefs are regarded as a component of environmental proactivity. Obviously, however, such a construct should always be embedded within socio-structural (such as education and income) and personality-related variables, impacting on and driving person-environment relations in the housing domain in all ages (e.g., Schaie, Wahl, Mollenkopf, & Oswald, in press).

In sum, both a life-span developmental and an environmental gerontology perspective suggest a growing importance of control beliefs in everyday domains in general and in the domain of housing in particular, as people age. Therefore, the first goal of this work was to develop an instrument aimed to measure housing-related control beliefs, entitled the Housing-related Control Beliefs Questionnaire

(HCQ), and to provide first data on its psychometric properties. Drawing from earlier discussions on the need to consider the multidimensionality of control beliefs (Lachman, 1986; Levenson, 1981), the construction was based on the well-established and most commonly used dimensions of Internal Control, External Control: Powerful Others, and External Control: Chance. Due to the preliminary character of the scale construction and the according psychometric results, we would regard this instrument as it currently stands as a pilot version, subject to further testing and improvement. Our second goal was nevertheless to present first data which empirically anchor the construct of housing-related control beliefs within a network of variables and constructs targeting socio-structural, personality-related, and housing environment-related aspects.

Method

Samples

Sample A. Participants in sample A were older adults from the Interdisciplinary Longitudinal Study on Adult Development (ILSE) (Martin, Ettrich, Lehr, Roether et al., 2000). The ILSE is a multi-center study on adult development whose basic aim is to identify predictors of successful aging. The study assesses a wide range of data, including demographics, health, functional capacity, cognition, personality, coping behavior, and housing. Following the assumption that housing becomes a more important part of everyday life after retirement, we focused on adults from the birth cohort 1930-32 (66-69 years). This "young old" group of adults was selected assuming that they are challenged to consider retirement-related housing decisions or changes. The sample consists of $N = 485$ community-dwelling participants who attended the second measurement point of ILSE, in which the HCQ was only ready for use. Half of the participants were from East Germany (55.1%), half from West Germany (44.9%). About half of the participants were women (48.2%), about one quarter (26.2%) were living

alone, and three quarters (73.8%) were living together with someone else in the same household, usually the spouse. Their subjective health status was, on average, good to satisfactory. Only some participants suffered from competence losses ($M = 2.6$; $SD = 0.8$ from 1 = "very good" to 6 = "very bad"), and average education level was 9.9 years of formal schooling ($SD = 2.3$).

Sample B. In order to have a wider age range available than in Sample A as well as to check for test-retest reliability, we used the HCQ in another sample of $N = 107$ community-dwelling older adults (65-91 years old; $M = 71.6$, $SD = 5.9$ years). Participants were recruited through newspaper announcements. About one half of the sample was living alone (46.7%), the other half was living together with others in the same household (53.3%), typically their spouse. There were slightly more women than men in the sample (56.1% women). Their subjective health was, on average, good to satisfactory, and relatively few participants suffered from competence losses ($M = 2.4$, $SD = 0.8$). Test-retest reliability was assessed after four weeks with a subgroup of randomly selected 39 men and women (36.4%).

Instruments

Construction of the HCQ and its application. The challenge in creating the HCQ was to generate items that measure control beliefs, but to adjust the wording to indicate domain-specificity, i.e., the domain of housing. Thus, various attributes of the immediate residential environment as suggested in the literature were taken into account, including housing-related instrumental and social support, stimulation within the apartment and in the immediate surrounding, as well as maintaining housing routines and habits within a familiar socio-physical environment (Lawton, 1989b, 1999; Wahl, 2001). Based upon both findings on functions of residential environments as well as on control beliefs in other life domains, 24 statements (later reduced to 23 items, see result section) reflecting housing-

related control beliefs were generated. Item formulations were based on the dimensions "Internal Control" (IC: 8 items, for example: "In my apartment / house, everything is going to stay just as it is for I do not care what anybody says."), "External Control: Powerful Others" (ECPO: 8 items, for example: "I rely to a great extent upon the advice of others when it comes to helpful improvements to my apartment / house."), and "External Control: Chance" (ECC: 8 items, for example: "You just have to live with the way your apartment / house is; you can not do anything about it."). Items were assessed on a five-point rating scale with higher scores reflecting higher amounts of perceived control from 1 = "not at all" to 5 = "very much".

Additional variables with potential importance for housing-related control beliefs. In terms of socio-structural variables and besides age and gender, the degree of education (scale from 0-5, with higher scores indicating higher degrees of education) and household income (scale from 1-11, with higher scores indicating higher income) were taken into consideration.

With respect to personality aspects, general control beliefs obviously were of particular interest. Thus, all participants were given the 14-item scale on general control beliefs from the Berlin Aging Study (BASE) (Smith, Marsiske, & Maier, 1996; Baltes, Freund, & Horgas, 1999). This scale consists of four subscales, namely "Internal control for desired events" (3 items), "Internal control for undesirable events" (3 items), "External control - Powerful others" (4 items), and "External control - Chance" (4 items). Participants have to respond using a five-point scale from 1 = "not at all" to 5 = "very much." For the purpose of this study, both internal subscales were merged into one scale in order to achieve comparability with the control dimensions used in the HCQ.

On the level of environment-related variables, housing tenure (owner vs. tenant) and selected aspects of the objective physical layout were considered. With respect to the latter, the available

amount of space per person in square meters, the number of barrier-free amenities at home (sumscore of nine aspects, such as wireless phone, handgrips in bathroom and toilet, separate access to the shower, options to sit down in the bathroom and when cooking, height adjustable bed) the overall lightning conditions of the home (sumscore of lighting conditions in five different places at home, i.e. entrance, staircase, kitchen, bathroom, and bedroom) and a general ranking of the objective quality of the home (5-point Likert-type rating, higher scores indicating better objective standard) were used for the analyses of the present work. In addition, the following subjective environmental perceptions were assessed: Perceived housing problems (5-point Likert-type scales, higher scores indicate more perceived housing problems) and satisfaction with housing (5-point Likert-type scales, higher scores indicate higher satisfaction). Finally, place attachment to the home environment was rated by the interviewers on a five-point Likert scale from 1 = "very low" to 5 = "very high", and the perceived neighborhood safety was assessed (4-point Likert-type scales, higher scores indicating higher safety), as an indicator for the experience of the immediate outdoor environment. These ratings were based on the in-depth parts of the interview, including descriptions of everyday life or answers to the question "What makes your house a home?" Two independent raters agreed on 91.9% of the judgements (range 90.7% - 93.0%) in an inter-rater reliability test covering 20% of the whole data material.

Procedure. In Sample A, a paper and pencil version of the HCQ was presented (duration about 10 minutes) within a larger set of questionnaires to each participant separately. Data-collection took place in the German Centre for Research on Aging. A trained interviewer introduced the questionnaire and was present during the examination to answer questions. Presentation of the HCQ in Sample B was identical, except that the instrument was this time applied in small groups of 8-15 persons.

Results

Psychometric Properties of the HCQ

The complete list of items used in the pilot version of the HCQ is displayed in Table 1 based on Sample A data. On the descriptive data analysis level, a tendency toward higher scores across the IC items as compared with both external control item sets was observed. Nevertheless was sufficient variation available with respect to each of the dimensions as revealed by standard deviations as well as the full use of the 5-point scale in case of each item.

Insert Table 1 about here

Next, we examined for substantial psychometric properties of the HCQ. After examining scale consistencies, one item (Item 10: "It is up to me to keep myself informed about new developments regarding age-friendly homes and home modification") was removed from the Internal Control scale in order to improve scale consistency. Thus, further analyses are based on 23 items in total. Final internal consistencies of the three subscales varied to some degree between both samples with Cronbach's $\alpha = .59$ (A) and $.68$ (B) (7 IC items), $\alpha = .66$ (A) and $.72$ (B) (8 ECPO items), and $\alpha = .83$ (A) and $.76$ (B) (8 ECC items). These sizes are comparable to the ones reported of the original Levenson general control beliefs scale (Levenson, 1973, with IC $\alpha = .51$, ECPO $\alpha = .73$, ECC $\alpha = .73$), in which also a tendency toward somewhat higher alphas in both external scales was observed.

To verify the stability of the questionnaire, data from Sample B were used to assess test-retest reliability of the subscales within a sample of $N = 107$ older adults and based on a four-week interval.

Test-retest coefficients displayed a high to medium amount of stability across four weeks (sum scores), $r_{tt}(\text{IC}, 7 \text{ items}) = .70, p < .001$, $r_{tt}(\text{ECPO}, 8 \text{ items}) = .78, p < .001$, and $r_{tt}(\text{ECC}, 8 \text{ items}) = .50, p < .001$.

To test for the empirical dimensionality of the HCQ, we conducted a factor analysis only with the larger sample of $N = 485$ (Sample A) to determine the underlying factor structure of the 23 items of the questionnaire. The analysis using the maximum-likelihood procedure and an oblique rotation method revealed a stable three-factor solution, explaining 37.8% of the variance. All items addressing IC and ECC had highest loadings (all $> .50$, with one exception: Item 13: .46) on the expected factors, while four of the eight items addressing ECPO tended to load substantially on ECPO as well. As was expected, items from the External Control subscales revealed high factor loadings on both External Control factors, ECC and ECPO. The selected rotation method of the factors does not assume complete independence between the factors; rather, it allows one to examine the correlations between the factors. Based on findings from other studies (Lachman, Ziff, & Spiro, 1994; Clark-Plaskie & Lachman, 1999) and theoretical assumptions behind the scale construction, we expected the two External Control scales to be related, but neither ECC nor ECPO to be positively related to IC. There was no significant correlation between ECPO and the IC, $r_{(ECPO \times IC)} = .00$, n.s. and a small negative correlation between ECC and the IC, $r_{(ECC \times IC)} = -.11, p < .05$., while the two External factors were positively correlated, $r_{(ECC \times ECPO)} = .24, p < .01$. Thus, our results basically confirm the assumption of three factors of housing-related control beliefs, although the need for further improvement of items and testing of this pilot version of the HCQ particularly with respect to the ECPO dimension was also supported by factor analytic techniques.

Relation of the HCQ with Socio-structural, General Control Beliefs, and Environment-related

Variables

Housing-related control beliefs and socio-structural variables. The literature on general and domain-specific control beliefs suggests that External Control, but not Internal Control, should be higher in older adults (Lachman et al., 1994). Correlating the three housing-related control belief scales with age within Sample B resulted, as expected, in a nonsignificant IC-by-age relation ($r = .08$, n.s.). In contrast, and in accordance with our expectations, both External Control subscales were positively related to age (ECPO: $r = .22$; $p < .05$; ECC: $r = .29$; $p < .01$). This tendency was also confirmed on the mean level by contrasting both samples. Means amounted in the "young-old" Sample A to IC: 3.93 ($SD = .55$), ECPO: 1.88 ($SD = .51$) and ECC: 2.31 ($SD = .79$), while means in Sample B were IC: 4.09 ($SD = .65$), ECPO: 1.86 ($SD = .62$), and ECC: 2.71 ($SD = .87$). Thus, especially the mean score regarding ECC tended to be higher in the older sample.

Based on data from the larger sample A, and as expected, gender did not show a relation with Internal Control ($r = .01$, n.s.) and External Control: Powerful Others ($r = -.04$), but a significant, albeit low correlation with External Control: Chance ($r = .13$, $p < .01$). Significant but also rather low correlations were observed with education and household income. In particular, and as might be expected, persons with higher degrees in education and with higher income tended to be lower in both external control subscales.

Housing-related control beliefs and general control beliefs. Correlations in the intermediate range between general control beliefs and domain-specific control beliefs were expected. This was based on assumptions that: (a) housing-specific control beliefs are part of the repertoire of the general control beliefs of individuals; and (b) to the degree the HCQ is tapping into variance unique to the housing domain, both domain-specific and general control beliefs should be unrelated. Assessing the correlations between the three domain-specific scales with the comparable scales of the general control

belief questionnaire (Sample A) show a low to intermediate positive correlation between both internal scales, while the relation between the ECPO scales was tentatively negative or nonsubstantial (see Table 2). In contrast, correlations between both HCQ external scales and the general external scales were clearly higher (but never reached more than about 25% of common variance), while the relation with the general internal scales was negative or nonsubstantial. Thus, the HCQ revealed the expected correlative patterns with a general control measure, but these correlations were not as high to question the need to differentiate between both constructs.

Insert Table 2 about here

Housing-related control beliefs and environment-related variables. For the present analysis, we selected only those housing-related characteristics expected to be particularly relevant to either internal or external housing-related control beliefs. For instance, with respect to objective environmental aspects, we assumed that owners have more say over their everyday home environments than tenants; subsequently, one would expect their perceptions of internal control to be higher and their perceptions of external control to be lower. Also, the assumption was that more positive aspects, like barrier-free amenities in the objective housing environment or more available space should tentatively come with higher internal and lower external scores in the HCQ, although potential causal dynamics behind such correlations were not considerable (i.e., whether better objective feature impact on housing-related control beliefs or whether housing-related control beliefs impact on the adaptation and improvement of the home environment). In addition, we hypothesized with respect to subjective environmental perceptions that internal housing-related control is positively and external control is negatively related

to positive evaluations of the home environment (e.g., perceived housing problems, satisfaction with housing, place attachment, but also the perceived neighborhood safety). Finally, the expectation was that the HCQ should consistently reveal higher correlations with environment-related variables as compared to the general control measure.

As can be seen in Table 3, tenants revealed higher External Control (both subscales) than owners, but this was not the case in terms of higher internal control. Results with respect to other objective features of the home environment confirmed the expected correlative pattern, but on a quite low level of relationship. With regard to perceived housing problems, there was a meaningful negative relationship between lower perceived quality of the home environment and higher Internal Control and a positive relation with both external scales, respectively. Also, both general housing satisfaction and place attachment as well as perceived neighborhood safety were positively related to Internal Control and negatively to both subscores of External Control. Again, however, all of these relations were quite low, but tended to be consistently higher as compared to the general control measure.

Insert Table 3 about here

Discussion

This work started with the premise that both from the perspective of lifespan development as well as environmental gerontology housing-related control beliefs should become increasingly important as people age. Housing-related control beliefs were also seen as tapping an important component of what Lawton (1989a) has labeled environmental proactivity, that is, the agency of older persons in terms of arranging their housing situation in accordance with their aging needs and goals.

Thus, our first goal was to create a pilot version of an instrument to measure housing-related control beliefs, the Housing-related Control Beliefs Questionnaire (HCQ), and to examine its psychometric properties. Our second goal was to explore the relation between the HCQ and socio-structural variables, general control beliefs and housing environment-related aspects.

Concerning our first goal, the items of the HCQ were designed to target three theoretically expected dimensions of control, namely Internal Control (IC), External Control: Powerful Others (ECPO), and External Control: Chance (ECC), and a variety of functions of the home environment as suggested in the literature (Lawton, 1989b; Wahl, 2001). Sample A, consisting of 485 old adults, revealed satisfactory internal consistencies comparable to those of Sample B, consisting of 107 old adults. In addition, test-retest coefficients demonstrated satisfactory stability of the HCQ and factor analysis suggested the expected three-factor solution, explaining a considerable amount of variance with highest loadings of most items on the hypothesized factors. With regard to the second goal of our study, results from Sample B revealed age correlations in accordance with our theoretical assumptions, i.e., both External Control subscales were positively related to age, whereas Internal Control was not. That is, housing-related control beliefs seem to behave in their age-related variation similar to those concerned with other life domains such as health or intellectual control (e.g., Clark-Plaskie & Lachman, 1999; Lachman, & Weaver, 1998; Lachman, Ziff, & Spiro, 1994). As was also expected, the relation with gender was generally weak, but both higher education and income were related to lower external housing-related control beliefs. Examination of the relationship between the domain-specific measure of housing-related control beliefs and general control beliefs revealed intermediate correlations, suggesting both that housing-specific control beliefs are part of the repertoire of the general control beliefs of individuals, yet the domain-specific HCQ also measures a considerable

amount of unique variance. This result supports the interpretation that housing is not only an important part of everyday life in old age (Baltes, Maas, Wilms, Borchelt, & Little, 1999), but a life domain that covers unique experiences and self-regulative processes, including environmental proactivity (Carp & Carp, 1984; Golant, 1998; Lawton, 1989a, 1999; Rubinstein & Parmelee, 1992; Slangen-de Kort, 1999). Finally, the relation of the HCQ scales with a set of housing-related variables was explored. As expected, housing-related External Control was lower among owners compared to tenants, but the expected higher amount of Internal Control of home owners was not observed. Furthermore, the expectation of lower External Control as well as higher Internal Control among those participants who considered their homes better in terms of objective and subjective indicators was quite consistently confirmed, but all correlations were low in size. They were, however, higher as compared to the correlations of the general control belief measure with housing environment variables.

Although we regard these first results in terms of psychometric quality and content as promising, the real test of the HCQ still is ahead. In particular, we expect that this instrument will unfold predictive validity in a heterogeneous sample, which was not available in the present study, in which both samples were positively biased due to their age (Sample A, only young-old participants) or recruitment strategy (Sample B, generated via newspaper announcements). An additional disadvantage of the present study was that data-collection took not place in the home environment of the participants, but in a “laboratory” setting. That is, all environment-related variables were assessed based on participants’ reports and not on a real observation / assessment of their housing situation. To counteract these limitations of the current work, a new project entitled “Enable Age” (Oswald, Wahl, & Mollenkopf, 2001) is underway. This project will focus on a detailed description of the home environment of a random sample of very old persons (Iwarsson & Slaug, 2001) and will use the HCQ

as a means to predict emotional and behavioral outcomes across a one-year interval. Our hypothesis is that very old individuals, high in housing-related Internal Control should have a stronger tendency towards actively optimizing their home environment and to create for themselves an "enabling" environment (Steinfeld & Danford, 1999; see also Lanspery & Hyde, 1997), as compared to those higher in housing-related External Control. If hypotheses like this will find empirical support, then the HCQ will provide as well potential as a tool to inform and underfeed practical and intervention decisions concerned with housing older adults in the future.

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Table 1: Means and Standard Deviations of Housing-related Control Beliefs Questionnaire (HCO) Items

Item (numbers in order of presentation in the questionnaire)	Mean	SD	Range
<u>Internal control:</u>			
1. <u>I am</u> able to set up my apartment / house in accordance with my own personal tastes and ideas.	4.34	0.80	1-5
4. <u>It is up to me</u> whether or not I make use of nearby support services and community facilities that could make my life easier.	4.21	0.87	1-5
7. In my apartment / house, everything is going to stay just as it is for <u>I do not care</u> what anybody says.	3.53	1.15	1-5
10. <u>It is up to me</u> to keep myself informed about new developments regarding age-friendly homes and home modification.	3.07	1.34	1-5
13. <u>It is up to me</u> whether or not I attend cultural events in my area or visit beautiful sections of my neighborhood.	4.40	0.79	1-5
16. <u>I could not</u> possibly trade the neighborhood I live in for another.	3.65	1.26	1-5
19. <u>It is up to me</u> , who helps me in or around my apartment / house.	4.25	0.90	1-5
22. <u>I am</u> able to set up my apartment / house in accordance with my own personal tastes and ideas.	3.16	1.35	1-5
<u>External control: Powerful other:</u>			
2. I rely to a great extent upon the advice of <u>others</u> when it comes to helpful improvements to my apartment / house.	2.42	0.97	1-5
5. Whether or not I will be able to stay in my apartment / house will probably depend on <u>other persons</u> .	2.14	1.20	1-5
8. In order to do anything interesting or nice outside of my apartment / house, I must rely on <u>others</u> .	1.69	0.92	1-5
11. I feel myself to be dependent upon <u>others</u> in order to use the support services and community facilities in my area.	1.38	0.95	1-5
14. When <u>other persons</u> offer to help me (e.g., with housekeeping) in or around the apartment / house, I can not say no.	2.59	1.05	1-5
17. <u>Others</u> have told me how to arrange furnishing in my apartment / house.	1.35	0.62	1-5
20. I listen to the advice of <u>others</u> when they tell me not to change anything in my apartment / house.	1.64	0.85	1-5
23. <u>Other people</u> are to blame if my apartment / house is not a place where I can enjoy life.	1.45	0.82	1-5
<u>External control: Chance:</u>			
3. Having a nice place is all <u>luck</u> . You can not influence it; you just have to accept it.	2.19	1.19	1-5
6. It is purely a matter of <u>luck</u> whether or not my neighbors help in an emergency or not.	2.54	1.13	1-5
9. Whether or not I can stay in my apartment / house depends on <u>fortunate circumstance</u> .	2.39	1.28	1-5
12. You just have to live with the way your apartment / house is; you <u>can not do anything about it</u> .	1.89	1.11	1-5
15. <u>Chance</u> has pretty much determined where and how I live.	2.18	1.27	1-5
18. It is a matter of <u>luck</u> whether or not I will be able to pursue my current manner of living in this apartment / house in the future.	2.35	1.21	1-5
21. The way my apartment / house has been set up is something that has more or less <u>occurred on its own</u> over the years.	2.34	1.12	1-5
24. Whether or not there are support services or community facilities in my neighborhood is a matter of <u>luck</u> .	2.53	1.14	1-5

Note. Items were presented on a five-point rating scale from 1 = "not at all" to 5 = "very much".

Table 2: Correlation of Housing-related Control Beliefs Questionnaire Subscales and General Control Beliefs Subscales

Housing-related Control Beliefs Questionnaire (HCQ)	General Control Beliefs Questionnaire ^a		
	Internal control (subscale)	External control - Powerful others (subscale)	External control - Chance (subscale)
Internal control (subscale)	.27**	-.13**	.05
External control: Powerful others (subscale)	-.07	.38**	.39**
External control: Chance (subscale)	-.14**	.30**	.54**

Note. N = 485 participants from Interdisciplinary Longitudinal Study on Adult Development (ILSE), $p < .01^{**}$.

^a Adapted from the Berlin Aging Study (BASE) (Smith, Marsiske, & Maier, 1996, Baltes, Freund, & Horgas, 1999).

Table 3: Correlation of Housing-related versus General Control Beliefs Subscales and Housing Environment-related Variables

	Housing-related Control Beliefs Questionnaire (HCQ)			General Control Beliefs Questionnaire ^a		
	Internal control	External control: Powerful others	External control: Chance	Internal control	External control: Powerful others	External control: Chance
<u>Objective housing-related criterion</u>						
Housing tenure (tenant = 0, owner = 1)	.04	-.25**	-.19**	-.06	-.00	-.03
Amount of space (m ²)	.02	-.21**	-.19**	-.04	.01	-.12**
Barrier-free amenities at home (sumscore 0-9)	.15**	-.18**	-.08	.05	-.08	-.00
Lighting at home (sumscore 0-5)	.19**	-.16**	-.04	.05	-.13**	.02
Objective quality of home (rating 1-5)	.16**	-.21**	-.19	-.03	-.01	-.04
<u>Subjective housing-related criterion</u>						
Perceived housing problems (rating 1-5)	-.16**	.24**	.18**	-.06	.02	.03
Satisfaction with housing (rating 1-5)	.24**	-.29**	-.23**	.06	-.03	-.06
Place attachment to the home environment (rating 1-5)	.22**	-.19**	-.18**	.06	-.11*	-.09*
Perceived neighborhood safety (rating 1-4)	.16**	-.18**	-.11**	.09*	-.05	-.06

Note. N = 485 participants from the Interdisciplinary Longitudinal Study on Adult Development (ILSE), $p < .05^*$; $p < .01^{**}$. See for further description of housing environment-related variables the method section of this work.

^a Adapted from the Berlin Aging Study (BASE) (Smith, Marsiske, & Maier, 1996, Baltes, Freund, & Horgas, 1999).