ABSTRACT

“THAT’S SOMETHING I SHOULD HAVE”: COMMUNITY-DWELLING OLDER ADULTS’ PERCEPTIONS OF PERSONAL EMERGENCY RESPONSE SYSTEMS (PERSS)

By Sunaina Rana

With increases in longevity, older adults are using technology to promote independence and “aging in place” for longer periods of time. Personal Emergency Response Systems (PERSs) assist older adults in receiving emergency help. This study aimed to explore female (n = 6) and male (n = 2) participants’ experiences with their PERSs using a descriptive thematic approach. The unique findings include the distinction between having, wearing and activating a PERS; subscription to a PERS as part of the service package at a housing facility rather than an individual choice; and activation of a PERS to get help for someone else. Participants attributed feelings of safety and security to their PERSs. Major challenges associated with a PERS were accidental activation and limited geographic coverage. Facilities, manufacturers, policy makers and researchers should explore different approaches and possible modifications to increase the subscription, consistent wearing and proper use of a PERS.
“THAT’S SOMETHING I SHOULD HAVE”: COMMUNITY-DWELLING OLDER ADULTS’ PERCEPTIONS OF PERSONAL EMERGENCY RESPONSE SYSTEMS (PERSS)

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Table of Contents

Background ......................................................................................................................................1
Methodology ....................................................................................................................................8
Findings ..........................................................................................................................................11
Discussion ......................................................................................................................................25
References ......................................................................................................................................30

Appendices
Appendix A Recruitment Advertisement for the newsletter..........................................................36
Appendix B Recruitment Script.....................................................................................................37
Appendix C Informed Consent form .............................................................................................38
Appendix D Interview guide..........................................................................................................39
Appendix E Codebook ...................................................................................................................41
List of Tables

Table 1. Characteristics of Interviewed Participants ..............................................................11
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It has been a wonderful learning experience.
Background

As the population of older adults grows, more people are living alone (Botia, Villa & Palma, 2012; McKenna, Klosek, Crilly & Polger, 2015; Fraisse, Perolle, Mavros & Etxeberria, 2007). In the US, the trend of living alone amongst older people has increased dramatically from 5% in the 1920s to 28% in 2012 (Administration on Aging, 2012). With advancing age, various age-related conditions and accidents come along such as a fall (Dibner, 1990; Elliot, Painter & Hudson, 2009; Lee et al., 2007; Miniño, 2007), a heart attack (Botia et al., 2012), a stroke (Chan, Estève, Fourniols, Escriba & Campo, 2012), chronic disease conditions/disabilities (Chan et al., 2012; Peek et al., 2014) and/or the chance of hospitalization, which could later transition into a move to long term care (Chan et al., 2012; Hamill, Young, Boger & Mihailidis, 2009). The severity of such incidents increases if they are not attended quickly (Botia et al., 2012; Chan et al., 2011; Fleming & Brayne, 2008; Gurley, Lum, Sande, Lo & Katz, 1996; Tinetti, Liu & Claus, 1993). This led researchers and practitioners to increase their interest in technology to address the needs of the older population. As a result, Personal Emergency Response Systems (PERSs) were developed to aid older adults with chronic illnesses and disabilities to live independently (Fallis, Silverthorne, Franklin, McClement, 2007; Gatzoulis & Lakovidis, 2007; Mann, Ottenbacher, Fraas, Tomita & Granger, 1999), to secure assistance quickly during emergencies and to reduce mortality rates significantly (Berstein, 2000; Gurley et al., 1996).

The first PERS was designed by Dr. Andrew Dibner in 1972 (Hessels et al., 2011). PERSs are simple electronic devices that contain a small portable radio transmitter in a pendant, bracelet, neck-collar or belt (Fallis et al., 2007; Hessels et al., 2011). They contain a button which sends a signal to the emergency response center (ERC) for help, when pressed (Dibner, 1990; Fallis et al., 2007; Porter, 2005). ERCs are 24-hour monitoring centers, set up at the nearest police station or community service center, which responds back to the older adult and confirms if any treatment or transfer to a hospital is needed (Fallis et al., 2007; Porter, 2005). The ERC dispatches help and contacts the relatives/friends/neighbors of the older adult after confirming the incident and transporting the elder to the hospital if required (Craig-Massey, 2013; Dibner, 1990).

In the US, there are 1.5 million PERS subscribers (Otto, 2010). Popular brands of PERS include Lifeline, Life Alert, Med Alert, and Ready Response (Hessels et al., 2011). Women in
their 70s and 80s are most likely to subscribe to a PERS and approximately 80% of total PERS subscribers live alone (Dibner, 1990; Roush & Teasdale, 1997). Most PERS subscribers got their PERS after they experienced a fall (Dibner, 1990; Levine & Tideiksaar, 1995; McKenna et al., 2015). Others subscribed after they contracted serious medical conditions (Fallis et al., 2007) such as rheumatoid arthritis, cardiovascular diseases or depression (Dibner, 1990), during rehabilitation, (Pantelopoulos & Bourbakis, 2010) or when they had any disability or multiple disabilities (Dibner, 1990; Fallis et al., 2007; Hessels et al., 2011; Roush & Teasdale, 1997). The primary intentions of having a PERS are to get a prompt help and to promote personal safety (Porter, 2003; Roush & Teasdale, 1997), independence and “aging in place” at an affordable cost (Botia et al., 2012; Coughlin, D’Ambroise & Reimer, 2007; Mann et al., 1999). Additionally, PERSs have been marketed to supplement/ substitute for continuous monitoring by a caregiver and provide reassurance and respite to families and caregivers (Fallis et al., 2007).

This study can be conceptualized in the context of how the environment can either enhance or hinder the ways people experience aging in later life (Werner-Wahl, Iwarsson & Oswald, 2012). Werner-Wahl and colleagues specifically mention the role that technology can play in this process. Technology can be used in home modification and in public environments to compensate for the functional and cognitive limitations that can accompany aging. PERS represents one such technology that can improve how older people interact with their environment in a later life during emergencies. The next two sections of this chapter examine the benefits and challenges associated with having and using a PERS and the final section describes the purpose of this study.

**Benefits associated with PERSs**

The primary benefits associated with a PERS are psychological, physiological and economical. Each of these three categories of benefits is described below.

**Psychological benefits.** Numerous studies have revealed psychological benefits of having and using a PERS at a personal and familial level (Fallis et al., 2007; Hessels et al., 2011; Hyer & Rudick, 1994; Redd et al., 1992). After obtaining a PERS (i.e., obtaining the device and enrolling in the monitoring service), subscribers reported having peace of mind (Cahn, 1991; Hessels et al., 2011; McKenna, 2015; Philips Lifeline, 2011) and feeling empowered to make decisions regarding their own care, and a sense of self-reliance (Hessels et al., 2011). Other researchers
reported that older adults who had a PERS felt that they would be able to remain in their home with reduced anxiety during emergencies (Dibner, 1990; Fallis et al., 2007) and increased independence to live in the community (Chan et al., 2011; Craig-Massey, 2013; McGadney-Douglass, 2001; McKenna et al., 2015; Philips Lifeline, 2011; Roush & Teasdale, 1997; Roush et al., 1995; Sherwood & Morris, 1980).

In addition, PERS subscribers expressed having “enhanced feeling of security” just by wearing their PERS (Fallis et al., 2007; Mann et al., 2005; McKenna et al., 2015; Roush & Teasdale, 1997; Roush et al., 1995). The PERS was also marketed to provide subscribers an easier life (McKenna et al., 2015, Porter, 2005; Robinson, 1991) and to increase confidence that they could get help if/when they need it (Porter, 2003). The sense of support (Dibner, 1982; Dibner, 1990; Fallis et al., 2007) and enhancement of self-reliance (McKenna et al., 2015) both increased after subscribing to a PERS. In addition, the subscribers also revealed that they felt they were getting along with new technologies after they subscribed to a PERS (Boström et al., 2011). Amongst people who own a PERS, most who activated their PERS were satisfied (Boström et al., 2011; Fallis et al., 2007; McKenna et al., 2015) compared to those who did not use theirs (Fallis et al., 2007). Many subscribers reported being satisfied with the design and service, and there was an increased likelihood of buying the device again (Heinbüchner et al., 2010).

In addition to having psychological benefits for PERS subscribers, PERSs also provide psychological benefits to families and caregivers to older adults. After an evaluative process during emergencies, the first responders (usually family members) of PERS users reported being more satisfied compared to those of non-users (Fallis et al., 2007; Kristjanson, 1991; Morse, 1953; Schaffer, 1953; Vroom, 1964). Having a PERS and the extent to which the family members’ expected needs were met determined the level of satisfaction of a family (Fallis et al., 2007). Moreover, the family members of the PERS subscribers also reported having peace of mind (Hessels et al., 2011; Philips Lifeline, 2011) and feeling supported (Fallis et al., 2007; Mckenna et al., 2015). It was also reported that there was an improvement in the relationship between the subscribers and family members by “keeping the connection intact” (Porter, 2003).

**Physiological benefits.** The major physiological benefit associated with a PERS identified in the literature is minimization of adverse situations by getting a quick help. Researchers estimated that 3.2% of the 33 million population of older adults who lived alone and
did not have a PERS were at the risk of being found helpless/“found down” or dead (Cohen & Van Nostrand, 1995; Roush & Teasdale, 1997). Gurley et al. (1996) reported only 1 in 367 older adults who lived alone and were “found down” had a PERS. Certain medical conditions such as cardiopulmonary arrest results in a fatal situation if not attended quickly, as the person only has a few seconds to react when it occurs (DeVita et al., 2004). Use of a PERS can be a life-saving device in such conditions. In addition, waiting for more than two hours to get a help results in the reduced chance of one returning to his/her own home and living independently (Gurley et al., 1996). Several researchers have found that, even among older adults who owned a PERS, those who did not use a PERS remained unattended and did not get any help for anywhere from almost an hour to 4.5 hours (Gurley et al., 1996; Fleming & Brayne, 2008). This evidence suggests that the use of PERS will reduce “an emergency room (ER) visit, hospital admission, prolonged hospital stay, premature institutionalization” (McGadney-Douglass, 2001, p.491) by minimizing associated complications and adverse situation due to delay in care, and reduce mortality rates by four times (Roush & Teasdale, 1995), if the cases were identified and treated at home as early as possible (Dibner, 1982; McGadney-Douglass, 2001; Roush et al., 1997; Roush & Teasdale, 1995).

**Economic benefits.** The advantages of using a PERS are not limited to physiological benefits for individuals and psychological benefits for individuals, their families and caregivers. PERSs have been shown to have a significant effect on the economy as well. PERS usage reduced the costs of early institutionalization, contributing to almost $3 billion savings a year (Hessels et al., 2011). The benefit/cost ratio for PERS subscribers was 7.19 in comparison to the non-subscribers; i.e. every dollar invested in PERSs resulted in savings of $7.19 in health care costs. In terms of institutionalization, “for every 1 day of nursing home placement for the PERS users, non-PERS users had 13 days of nursing home stay” (Hessels et al., 2011, p.154). The use of PERS significantly contributed to decreased hospital admission (Roush et al., 1995; Roush & Teasdale, 1997), length of stay (Roush et al., 1995; Roush & Teasdale, 1997), reduction of home health monitoring by home health aides and decreased by half hospital utilization (Dibner, 1992; Hyer & Rudick, 1994; Roush & Teasdale, 1995; Hessels et al., 2011). Hessels et al. (2011) documented that among 38 PERS users, over a 19 month period, PERS saved 94,000 hours of home health care aide by substituting 12 hours per night home health aides, which is equivalent to a savings of 1.5 million dollars for Medicaid.
Challenges

Despite the psychological, physiological and economic advantages of PERS, at least three distinct barriers regarding subscription to and/or the use of a PERS have been identified in the literature. The primary challenges associated with PERSs are getting someone to acquire a PERS, wearing/carrying it all the time and activating a PERS to get help (Mann et al., 2005; Porter, 2003), each of which is discussed below.

Not owning a PERS. The emotional reasons associated with not subscribing to a PERS are not wanting to be dependent on technology, feeling and/or being perceived as not being able to take care of one’s self, being symbolized as frail or helpless (Boström et al., 2011), and considering as the PERS ‘a badge of dishonor’ (Porter, 2005). Another barrier to having, let alone using, a PERS is someone not realizing if s/he needs one (Hessels et al., 2011; Porter, 2005). Many older adults do not seem to realize when it would be best to subscribe a PERS (Fallis et al., 2007; Porter, 2005; Tomita, Russ, Sridhar & Naughton, 2010), for example, after one has experienced a fall or after s/he feels a deterioration in his/her sense of balance. Additionally, Hessels et al. (2011) reported that older adults did not want a PERS was because the device was too expensive and it was too cumbersome to have it installed.

Owning but not wearing the PERS regularly. Even after acquiring a PERS and subscribing to the service, there are reasons that hinder one from wearing a PERS regularly and activating the device to get a help. Mann et al. (2005) reported that, among 93 PERS owners, slightly more than half wore or carried their PERS less than one time a week and nearly one-third of participants wore it 1-3 times a week. Similarly, among old frail widows who wore a PERS, Porter (2005) explored the discrepancy between continuously wearing and activating a PERS. One reason for intermittent wearing is older adults underestimated how many precautions one should take at home; some subscribers felt keeping PERS handy or within reach (not necessarily wearing it) was sufficient (Morrow-Howell, Proctor & Rozario, 2001; Porter, 2005; Porter & Lasiter, 2012; Tomita, 2010). These misunderstandings discouraged subscribers from wearing the device all the time (Porter, 2005). Taken together, not developing the habit of wearing the PERS, not being able to reach to the device and not being physically able to press the button inhibited the subscribers from getting the potential benefits (i.e., help that they needed) from the PERS (Fleming & Brayne, 2008). Although PERSs have been recommended to
people who live with disabilities and chronic health problems (Dibner, 1990; Fallis et al., 2007; Peek et al., 2014), for maximum benefit, a subscriber must wear the PERS all the time and be physically able and cognitively alert enough to activate the device when necessary (Hessels et al., 2011). Additionally, Levine and Tideiksaar (1995) found that female subscribers wore PERS more regularly than male subscribers. Further, the PERS subscribers who subscribed to the device on their own tended to be more compliant than those who were asked to have it by family members (Porter, 2005). Some wore it just to keep promises made to a caregiver, whereas some avoided wearing it while going out and/or in the presence of another person (Porter, 2005).

Moreover, the subscribers have reported intermittently wearing a PERS during certain activities such as bathing, swimming, cleaning dishes, etc. In spite of knowing that they could use it during those activities, they did not like to get their device wet (Porter, 2003).

**Owning and/or wearing but not using it to get help.** PERS owners also seem to be concerned that a possible trip to the hospital would be a source of stress and would put undue pressure on family members. This concern discouraged subscribers from activating their PERSs even when they thought it might be appropriate to do so (Fleming & Brayne, 2008). Also, not being able to determine when to call for a help was a reason for PERS subscribers to be hesitant about activation (Porter, 2005).

PERS have been reported as being inconvenient, visually unaesthetic (e.g., bulkiness, not comfortable) (Hessels et al., 2011) and leading to the feelings of invasion of privacy due to the 24-hour monitoring system (Demiris, Hensel, Skubic & Rantz, 2008; Porter, 2003; Porter & Lasiter, 2012). Many users were stressed because of a strange voice (Porter, 2003) and unannounced visitation when a PERS was accidentally activated (McKenna et al., 2015; Porter, 2003). Several studies examined the effect of PERS in the reduction of anxiety and insecurity. Lee et al. (2007) reported that there was no significant effect on anxiety and fear of falling among subscribers compared to non-subscribers. Furthermore, the subscribers reported their concerns that having a PERS was not a full proof plan and required them to arrange some back-up plan, in case the PERS did not work (Porter, 2005).
Purpose of the Research

Numerous studies have been conducted on older adults’ use of a PERS, but there are several gaps in the existing literature. First, relatively little research has assessed older adults’ motivations for having and using a PERS. Second, the majority of the studies only looked at positive or negative aspect of a PERS. Third, the vast majority of studies were based on samples of older women, rather than women and men. Finally, most of the studies were done with subscribers to earlier versions of PERSs that are more bulky and less sophisticated than contemporary PERSs. This study aimed to overcome these limitations by including voices of both male and female PERS subscribers through qualitative, one-on-one interviews. The specific research questions were as follows:

1. What are older adults’ motivations for having and using a PERS?
2. What are older adults’ feelings about having their PERS?
3. What do older adults like and dislike about PERS?
Methodology

Recruitment

Prior to participant recruitment, this research was approved by Miami University’s Institutional Review Board (IRB). The participants were recruited from a local senior center, a local continuing care retirement community (CCRC) and the Institute of Learning in Retirement (ILR) at Miami University. At each site a ‘gate keeper’ was identified who arranged different recruitment approaches for purposeful sampling. At the local senior center, the outreach and marketing coordinator arranged publication of an advertisement about the research (see Appendix A), in a monthly newsletter. She also arranged for the researcher to make a recruitment announcement (see Appendix B) at a congregation meal at the senior center.

The local CCRC where participants were recruited was a non-profit organization that consists of assisted living, independent living and a memory care unit. First, the investigator contacted the administrator with a short description of the study. He arranged a meeting with the ethics committee, which consists of the administrator, director of nursing, social worker and activity director, to decide if the study was appropriate to be conducted in the facility. After a short presentation of the study, permission to recruit CCRC residents in this study was obtained. With the help of the social worker, two recruitment announcements (see Appendix B) were made at a coffee meeting and town hall meeting to recruit participants from independent living. Sign-up sheets were used at both the senior center and the CCRC. Since the expected number of participants could not be obtained from these two sites, it was planned to recruit more participants through the ILR’s list serve (after getting approval of the modification from IRB). The program manager of the ILR sent out advertisements about the research (see Appendix A) to its members.

Participants

The inclusion criteria were that participants: 1) be older adults above the age of 65 years, 2) live alone and 3) have been using a PERS for at least three months. Of the 8 participants who volunteered for this study, three were recruited from the local senior center, five from the local CCRC and no participants were recruited from the ILR. The study included both female (n = 6) and male (n = 2) participants. All participants were widowed and white.
Data Collection

The data collection process was completed in four months (January, 2016- March, 2016). Prior to conducting the individual, face-to-face interviews, the researcher reviewed the elements of informed consent with participants and obtained signed, informed consent (see Appendix C). Permission to follow-up over the telephone for missing information was obtained from all participants as a part of the consent process.

Individual, face-to-face interviews were conducted in a location chosen by each participant. Three of the participants from the community were interviewed at the senior center, whereas participants from the CCRC were interviewed in their homes. In-person interviews allowed the investigator to explore home environment and also consider the body language of the participants during their responses. The interviews were audio recorded for subsequent transcription and analysis. The interview guide (Appendix D) consisted of open-ended questions. The length of the interviews ranged from 24 minutes to 37 minutes. Two of the participants were contacted over the phone to obtain clarification about several statements (i.e. what they meant when they stated “getting used to” and “feeling good” about having their devices).

Data Analysis Strategy

The interview tapes were transcribed verbatim by the researcher. The researcher checked the transcripts for accuracy and completeness, followed by data cleaning to remove personal identifiers. This process resulted in ‘clean’ transcripts that protect the confidentiality of interviewees. The investigator made sure that the audio recordings and transcripts were consistent by checking them carefully to increase the trustworthiness of the data. The clean transcripts were carefully examined for keywords, ideas and patterns after the transcripts were uploaded in Dedoose (Version 7.0.21). Then, the descriptors (demographic characteristics) were assigned to each participant’s transcript. The coding was done and re-examined to develop a refined codebook in Dedoose (see Appendix E). The codebook includes an explanation of what each code means and its associated theme. The investigator further investigated the codes for over-arching meaningful categories emerged from the responses and some the codes were collapsed into one big category in Dedoose. The investigator was careful to make a continuous comparison with any field notes of information such as any unusual expression, change in tone, body-language etc. for example, I would mention the place if a participant pointed toward a
place where s/he usually kept his/her PERS when s/he did not wear it or if a participant pointed to the place where s/he fell. To ensure the trustworthiness of the data, the transcripts were read repeatedly and sometimes the responses were paraphrased to verify and obtain a full understanding of their intended meaning.
Findings

After my personal observations and conversations with each participant, it was found that the participants lived in single floored houses with similar home environment (with no stairs). Table 1 depicts the demographic characteristics of the participants. The interviewees were identified with a pseudonym to maintain their anonymity. As can be seen in the table, the youngest participant was 80 years old and the oldest participant was 97 years (Mean= 88.88; SD = 5.38 years). The participants had been living alone for an average of 9 years (SD = 7.66 years). The participants had owned their PERS for an average of 8 years (SD = 4.34 years). Five participants had their PERSs in a pendant form and two had their PERSs in a form of bracelet. One participant had previously owned a PERS in a form of a bracelet; later she owned a PERS in a pendant form when she moved into the CCRC.

Table 1 Characteristic of the Participants

<table>
<thead>
<tr>
<th>Participants</th>
<th>Age</th>
<th>Length of Time Lived Alone</th>
<th>Length of Time Owned a PERS</th>
<th>Form of PERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms. A</td>
<td>93.0</td>
<td>8.0</td>
<td>8.0</td>
<td>Pendant</td>
</tr>
<tr>
<td>Ms. B</td>
<td>87.0</td>
<td>9.0</td>
<td>5.5</td>
<td>Pendant</td>
</tr>
<tr>
<td>Ms. C</td>
<td>80.0</td>
<td>26.0</td>
<td>5.0</td>
<td>Bracelet, Pendant</td>
</tr>
<tr>
<td>Mr. D</td>
<td>97.0</td>
<td>3.0</td>
<td>15.0</td>
<td>Pendant</td>
</tr>
<tr>
<td>Ms. E</td>
<td>85.0</td>
<td>8.0</td>
<td>12.0</td>
<td>Pendant</td>
</tr>
<tr>
<td>Mr. F</td>
<td>91.0</td>
<td>0.3</td>
<td>15.0</td>
<td>Pendant</td>
</tr>
<tr>
<td>Ms. G</td>
<td>86.0</td>
<td>12.0</td>
<td>5.0</td>
<td>Bracelet</td>
</tr>
<tr>
<td>Ms. H</td>
<td>92.0</td>
<td>8.0</td>
<td>4.0</td>
<td>Bracelet</td>
</tr>
</tbody>
</table>

The primary objective of this study was to better understand older adults’ perceptions about their PERS. Participants’ experiences were organized into six categories of responses based on the research questions. The first category, motivations to subscribe to a PERS, reflected the first research question. However, during interviews, the distinction between having and wearing a PERS emerged. As such, the second category was motivations for not wearing PERS regularly. The third category was motivations for activating a PERS addressed an aspect of the first research question. The fourth category summarized the meanings each participant attributed
to having a PERS, which reflected the second research question. The responses participants provided on their likes and dislikes about a PERS emerged as fifth and sixth categories and addressed the third research question. A detailed description of each category is presented below.

**Motivation to subscribe to a PERS**

There were two major reasons why the participants subscribed to a PERS. For all participants who lived at the CCRC, a PERS was included with other services and the associated costs were included in their monthly fees. Hence, their PERS was provided by the housing facility and the participants did not refuse the service.

Mr. D, a man in his late 90s who lived at the CCRC, described himself being a prisoner and had this pendant system as a protection. He stated, “Well, there was no decision to make. They said. Here we have pendants to protect our inmates. Well, it was just offered to me. [I]saw the advantage of it, so used it.” Mr. F, a recently widowed man in his early 90s, expressed his concerns about not having to make his own decision to subscribe to a PERS. He said:

Yes. They [the facility] basically don’t ask. They just give it to you. They just keep begging you to use it. We didn’t make a decision at [name of the CCRC]. Everybody here has it [PERS]. So when we moved here, they issued these [PERSs] to us; one for my wife and one for me. I have no objection whatsoever.

Others in the CCRC told similar experiences about their subscription to a PERS. Some participants in the community mentioned that they discussed having a PERS with their family members. Others reported having their PERS for individual reasons. Ms. A and Ms. H, both widows in their early 90s who lived in the community, had discussed having a PERS with their children. Subsequently, they subscribed to their PERS. Ms. A stated:

Before I came here, I lived alone after my husband passed away. But, I didn’t have a button [PERS] and I had neighbors that I knew… when I came here, for the children’s feeling of safety [she subscribed to a PERS], I did it because and it’s a good thing I did cause I’ve used it [PERS] since.

She further added, “I got to think of my children because I thought this [PERS] helps them. They don’t have to really worry about me. I do think about them first because they have been good to
me.” For Ms. H, a prior history of a medical condition had made her son bring up the discussion about whether to have a PERS. Ms. G said, “Four years ago after I had stroke. That’s when my son wanted me to have one [PERS], just in case…We, we usually discuss things together and I decided it [because] it was a good idea. It makes you feel a little safer.”

Ms. C, a widow in her early 80s who subscribed to a PERS before moving into the CCRC, reported:

I saw ads about it and I thought [you know] maybe that’s something I should have, I guess. I really just encountered something on the paper or something I had heard and I called [PERS provider] and I was not really intending to necessarily get one. I just wanted to find out about it. But, of course you get these salesmen and I ended up with one.

Similarly, Ms. H, a 92 years old widow living in the community, decided to have a PERS because of her past falls. She states, “…because I was fallen. I slipped on ice. [I] fell, I tripped over. I mean I didn’t fall just to fall, there was a reason [ice]…yeah I broke, I broke both wrists and this ankle [left ankle].”

In the community, participants decided to have their PERS on their own but often time there was an involvement of family members on their decision making.

**Motivation for not wearing a PERS**

The discrepancy between having a PERS and activating a PERS was explained by constraints associated with not being willing to wear a PERS regularly. Six of the participants reported wearing a PERS off and on. One participant did not wear it at all, but kept it inside a drawer. Two participants stated they wore it all the time. Ms. B explained the reasons for wearing her PERS off and she stated, “It’s [PERS] outside the shower. Ya and I have the phone right there too [during shower]… I am going outside, with my son, going shopping or going for dinner or something. I don’t bother with it.” She further added:

… And I just got home from the hospital. It was probably on the table there or something. [Name of her daughter] and her husband were staying over in the next bedroom. I was under the influence of strong pill and I decided that I needed to get up and go to the
bathroom and I got out of the bed and just sat down right beside the bed and I could not get up and this [PERS] would not help me because [name of her daughter] would not hear it next door. I pulled cell phone from real close, and I called her. Then, they came dashing in there and they got me up.

Mr. F and Mr. D retold similar stories that they did not wear their PERS when they were taking a shower to keep it from getting wet. Mr. F explained:

I had it hanging around the waist on my belt. I don’t wear it in the shower. No, I have it on the nightstand right beside my bed every night. I always have it with me if I am dressed. I have it with me every time. I don’t go anywhere without it. I even wear it off campus even they tell that it doesn’t work off campus. But, I wear it all the time.

Ms. G stated that she wore her PERS all the time in her home but not when she was out of town:

I wear it all the time even in the shower. But if I go out of town, meaning if I go out to [name of another state] or [name of another state], I take it off, put it down on the table and it goes on when I come back it just starts to work.

Ms. H told that she wore her PERS all the time. But Ms. A mentioned that she took off her PERS once when she was going to an event and she wanted to look ‘pretty.’ She stated:

One time I took it off. I didn’t want this black thing [black thread of her PERS] to show, so I thought I put it in my purse. When I got home and I’d put it on. [I] wanted to be pretty.

Ms. E, on the other hand, presented a different story. Although she had her PERS for almost 12 years, she hadn’t ever worn it or used it because she believed she had control over her balance and hadn’t really thought about wearing her PERS unless she sensed her balance was diminishing. She mentioned:

I don’t [wear it]. If I am going up the ladder, I go get it I put it around my neck. Since I am not supposed up the ladder… I know it’s there [in the drawer, where she kept her PERS] and I hope that I have enough sense to wear it when I needed… but, you know I don’t have any feelings. I mean if I felt that I was unsteady on my feet, I’ll certainly wear it all the time. I think it will make me feel better. I don’t know because I haven’t been
through it yet. I feel real steady on my feet. Maybe I am not being very smart but [I don’t wear it].

Ms. C reported she wore her PERS all the time:

It doesn’t bother me. I’d never take it off. I go to water aerobics every morning. I just left it on. I never took it off… one day, I was in the pool and I had it on. My next door neighbor was also there with me. She saw me and said, “Is that your pendant?” I said, “Yes.” “Well, you are not supposed to get that wet.” I said, “They [the CCRC people] didn’t tell me that.” Because when I had the first one [wrist PERS; now she has necklace], I could wear it all the time… then I called at the CCRC… she told me she would test my pendant and it was fine.

These responses highlight the discrepancy between having and wearing a PERS. Participants mentioned not wearing their PERSs for certain activities and special occasions. The major barriers for such intermittent wearing are discussed later in the section of challenges. However, participants who owned their PERSs on their own were more compliant in wearing their PERSs regularly.

**Motivation to activate a PERS**

Health related issues such as a heart attack, fall and/or illness, were the major motivations for activating a PERS. However, not all the PERS users activated their PERS to get help for themselves; a participant once used his PERS to get help for someone else. Similarly, not all acute events motivated the PERS subscribers to activate their PERS. One participant mentioned an incident when he decided not to use his PERS. Ms. A, who used her PERS when she had a heart problem, stated:

… it was the first time [heart problem]. I called my daughter and forgot I had it around my neck and my goodness!! I said I am sorry I forgot about this [pointing toward her PERS]. Then I pressed it and the guys were there so quick and she [her daughter] was there at the hospital by the time I got there.

Ms. B explained how she activated her “medallion” [PERS] when she fell and got the help she needed. She described:
I got out of the bed and I never got my balance. I just took off for the bathroom and I kept falling forward, so I fell and I had this [pointing toward her PERS] on then. I punched it a couple of times and my phone went off and my faithful cane pulled the telephone off the table and I answered the phone, they said, “Oh! What’s the trouble?” I said, “Well, I fell and I can’t get up.” that old line you hear all the time. They said, “We’ll be right there” So, I was propped up against a chair and I pushed that chair as far as that could go and I heard somebody down here and I said, “Am I hearing somebody?” They said, “Yes, where are you? “It was pitch black in here so they turned on lights, when they found me. I said, “Well, I am in the back bedroom” And they [CCRC staff] came.

Ms. C told a similar story about when she fell, hit her head, and she was bleeding from her head. This event triggered her to activate her PERS. Similarly, Ms. H described an event when she used her PERS to get help during an acute health episode:

I was vomiting and diarrhea. I was so sick. I just couldn’t take it and I called them. They [staff from PERS service] were right there and very patient and nice. They took me to the hospital and I was there for three days. They finally got it stopped. I don’t even know what it was.

Mr. F described an event when he used his PERS to get help for his wife:

I have used it. I have never used it for myself. I have used it for my wife [she had cancer]. But I sometimes have been known to push my own pendant to get a response. Then, one time we didn’t get any but a couple times we used it, we did get a response that was pretty rapid. One time I activated it, but nobody came after about three times. I got on the telephone. Found out my pendant was not working. Eventually I got help after using the phone. Well, I felt delay, maybe it was not important for them. [But] Lost seconds can be a very valuable situation like [that event]. My wife had her pendant too. As far as I know hers always worked. But when she was lying on the floor and screamed and [in] pain. She didn’t think about pushing pendant. That’s when I pushed mine.

Mr. D explained an incident when he decided not to use his PERS:

I was just going to the refrigerator and I was in a hurry and I fell against the corner. I did not fall completely. Just fell toward the corner. If it had not been in the corner of the
refrigerator-- the wall. I would continue to fall, but I just fell toward the corner. There was no reason to [activate the PERS].

These responses summarize the reasons for activation of a PERS, which are mostly health-associated reasons. It was also found that a PERS can be used to get help for someone else. Deciding whether to activate a PERS or not was a choice the subscribers made based on their perception of severity of the incident.

Meaning of having a PERS

A sense of “safety” or “security” when having a PERS echoed from all participants. The majority of the participants considered the PERS as a tool to get help during emergencies, while a few considered it as “company” because they were not alone and the PERS provided then reassurance that they could get help when needed. Additionally, a few participants mentioned having this device meant comfort to their family members because family members/significant others don’t need to worry about them not getting any help during emergencies. Some participants appreciated that having their PERS meant “feeling of goodness” that they can get help. One participant mentioned she was overwhelmed with technology, but she had no objection being spied on. Ms. A explained her PERS meant safety to her and her children by stating, “This means security to my children. I mean, as I said they are so good to me, they should be honored by, you know, doing best for me [by having her a PERS].” Ms. C expressed her concerns that although it meant ‘security,’ being physically able to push the button is also necessary to get help. She said, “Well, it’s kind of security. Because like if I fell and knock myself out [unconscious], it wouldn’t do any good.” Mr. D and Mr. F reiterated the same sentiment by emphasizing the security provided by their PERS.

Ms. G ascribed her PERS as a “safety” and stated, “Well, it means that I can, if something happened and I couldn’t reach my phone that I could push that [her PERS], I could [call and] someone responds.” Ms. H said, “Well I guess since there’s no family close by. That’s safety [and] it makes me feel good. You know that you can get the help.” Ms. B expressed that having PERS made her feel that she wasn’t alone and she could get somebody if she needed:

Well, it really means I’m not alone. I am alone but [It means] I can get somebody if I need them. But I don’t want to call them if I don’t need them. But I had one in, I forgot
the company, I pushed my medallion one time because I thought I was having a heart attack. They were there. Well, that’s what they get paid for.

Ms. E, 85 years old widow who has had a PERS for 12 years but hasn’t worn it, expressed:

It is a safeguard. I mean I have seen it work and I guess it’s a comfort in a way, you know people have said maybe they [PERSs] don’t work and all those stuff. But I have seen it work I was there. It works just like it was supposed to. I think we should have them all of us, we should have them. Definitely. I think it is just a technology. Sometime I get completely overwhelmed with it but I think it’s the way to go [with technology] I guess. [But] I don’t mind. Some people have this feeling [that] they don’t wanna be spied upon or you know they feel that doesn’t bother me at all. I don’t who wants to know, really I don’t. I am not paranoid that way.

All these findings showed how the participants felt about their PERS. Participants attributed feelings of safety and security, and “company” to their PERSs, yet expressed “pride” for not having to wear/use a PERS. Overall, the meanings, participants attributed to their PERSs, were mostly positive.

**Benefits of a PERS**

There was an overlap between the meaning participants attributed to having a PERS and the perceived benefits associated with their PERS. Participants mentioned that the benefits associated with their PERS were safety, security and it was a tool that they could use to get help. The participants also acknowledged the affordability associated with their PERS. One participant mentioned she could also use it as an accessory. Additionally, some participants expressed they had had their PERS for long time and accepted it as a part of their life. Ms. A, Ms. C and Mr. D highlighted the security aspect of a PERS. Mr. D stated, “Well, security aspect, what else is there to like about it.”

Ms. H described her PERS as a tool to seek help when needed. She said, “…To know that I can call for help.” Ms. E, who had not worn or used her PERS since she got it, echoed a similar sentiment, saying:

Well I think. You know if something happens, you are gonna get help, I know that they’ll be there. That’s really a wonderful thing. I know some people prefer a pendant to a wrist-
watch. Well, it’s not a fashion statement that’s for sure, but I don’t think it matters to me. It doesn’t matter. But maybe if I wore it all the time, I would decide differently. I cannot really answer how it would feel, if I was really wearing it constantly.

Mr. F argued that he had no problem with his PERS and stated, “I have no problem with the design, no problem with the portability. If it means having it [PERS] checked here at the CCRC, is it working, not working? [There is] really no problem.” Ms. G described, “I prefer the bracelet. And of the bracelet, I just don’t pay any attention. And of the bracelet, I just don’t pay any attention that it’s [her PERS] there [around her wrist].” Furthermore, most of the participants from the local CCRC appreciated that the cost associated with their PERS was hidden and they don’t have to pay it out of pocket. Ms. C expressed:

Well. The one I used to wear was I think like forty dollars a month, $39 something a month. This one is just a part of the service at the [the CCRC], so I don’t [think it is expensive]. I mean I pay for with my monthly fee, I guess it doesn’t have a specific price tag on it. Now, I mean the [name of CCRC] could probably tell how much it costs for everybody [Bundled payment]. I just figured that’s just part of the service [provided by the CCRC]. Then I just realized that probably because I had one before and [I] was paying out of my pocket. I mean I realized I was paying for this service, even though it is kind of hidden in my fees which is better.

Mr. F further supported that having an expensive PERS was acceptable for him if it has additional features such as larger geographic coverage a built-in GPS, and/or was made of better material, stating:

Maybe the CCRC could offer an option here that you could go for no extra charge or [you] want to pay X number of dollar more per month [that] works anywhere… the chain [with his PERS] was a bit cheap chain that changed color like green, got corroded.

All participants from the local community had their PERS through the local levy-funded Elderly Service Program (ESP), which provided the service at an affordable rate to older adults with a low income. Ms. A stated, “It’s very cheap for me because I’m in low income cause I am under ESP. I talk to [a person from ESP] and she checks on me.” Ms. G and Ms. H had their PERSs through ESP and they acknowledged affordability of PERS service.
Ms. B accepted her PERS as an accessory:

Well, it’s part of my life. And I don’t have any reason not to wear it. I’m not a real jewelry person and my daughter is always giving me some jewelry. I even forget to put my rings on but I put this [her medallion (PERS)] on every day. Many time, at a town meeting they [CCRC’s staff] ask how many people who got their medallion on and there was times when I had not worn it, early on. But, I wear it all the time now.

All these quotes concluded the PERS had several benefits: safety, security, a tool that a person can used to get help when necessary and as an accessory.

**Challenges associated with a PERS**

Although all participants mentioned that their PERS had many benefits, most participants reported accidental activation was a major drawback associated with a PERS. Some of the participants identified being unable to adapt to wearing a PERS or even forgetting that they had a PERS, as other drawbacks. Additionally, participants indicated that they did not like to get their PERSs wet or that it got tangled with other jewelry they were wearing. Several participants remarked that that the limited geographic coverage of their PERS was a limitation. A participant reported lack of necessity and feeling overwhelmed by the technology. All of the participants living in the local CCRC expressed their concerns about having their PERS checked just once a year. However, participants who did not reside at the CCRC mentioned they had to test their PERS once a month.

**Accidental activation.** Several participants reported incidents when they activated their PERSs unintentionally. Ms. A stated, “I have had this happened that something will hit the button in the night and they come on, you know. So you just say “I am sorry, I made a mistake.” It was alright and went back to sleep.” Ms. C reported an event of accidental activation and how she felt about this incident:

There was one time and I didn’t know what I was doing and I probably bumped it against something with my wrist one [bracelet PERS] and this one [pointed at her PERS pendant] I have never had a problem with pushing it accidentialy. They [staff at the CCRC] called. They did phone call and they asked. I apologized. They said you pushed your button [you know]. “We had a signal.” I asked “I did?” Well, I felt badly in the sense that they had to
do all that, but then I thought, well, that’s what it is for. I guess it is their job to check on those things.

Ms. G recalled an event when she hit her PERS by accident:

…when I hit it accidently, they did call me on my cell phone first or, they would call my son and, umm, the time police and everybody came, my son and I happened to be talking to each other on the phone. So they couldn’t reach us [through the phone], but I was out on the paddy and just told them what I was doing and all of a sudden he smiled, [I] felt kind of ridiculous and dumb. But, umm, at least I knew that, they will be there when I need them.

She further mentioned that she changed her PERS because it went off without event touching it. She stated:

…the one I had before, it would go off and that aggravated me, in the middle of doing dishes, I dint even touch anything and it was like my sleeves were pulled over. And I called them [PERS service provider] and told them what’s going on and they gave me a different one.

**Uneasiness.** Ms. A mentioned she was uncomfortable with having a PERS at first and she even forgot that she owned one when she had an emergency. She described:

It was a funny feeling [uneasiness]. Why should I, you know, have something around my neck? You know, my wrist? For the first, I’d say, six months do you know I had to use this bell? I guess, may be, kind of nervous about things. Anyways, the first time I went to use it I called my oldest daughter. I said, “Oh [name of her daughter], I’m going to have to go the hospital” and she said, “you’ve got the bell, what’s it for?” but it was the first time. I called her and forgot I had it around my neck.” The only thing, may be, I could say that I like some of these have a pretty chain. They’re prettier than this black cause when I have clothes that have big neck, I keep thinking if it was in a chain. It’s just because I think it [PERS with silver chain] is pretty.

Similarly, Ms. C was not satisfied with her PERS for it got tangled with other necklaces she wore and its’ fastener is not secure. She stated:
…if it doesn’t come loose, I wear this necklace [A cross], sometimes two of them get tangled with each other which is not good. But sometimes, it pulls apart and it has an easy opening that isn’t something I need.

Mr. D expressed his concerns about getting the thread of his PERS wet, “I don’t think I’d like to soak it in the water. First, I cover it with washcloth to keep it from getting wet.” Likewise, Ms. H noted that she had some concerns related to its’ design, stating:

White and square. The other one was tan and it was oval. I liked that so much, but it is not sharp. I feel like I will be dead with this thing. I mean, just, I don’t, I don’t like the square. The white, I found I got used to it but I rather it was tan and oval. I don’t like that sharp corner, those corners. I don’t like that [sharp corner of a PERS] they gave me stretch band. The other one was buckled, no good at all. That’s how it fell apart so, when they came to give me another one I said, “No I don’t like those.” He [a staff at ESP] says, “They, they, they’re all fallen apart.” So, he gave me this one. This is much better. Well, this is kind of stretchable. It’s the hook’s not close, so I like that.

**Limited coverage.** Mr. D remarked on his PERS coverage, “…and If you are going to the reservoir [a place inside CCRC]. I mean like the range is limited. I have a GPS system on my watch. My daughter can track it on her phone.” Similarly, Mr. F expressed his concerns related with limited coverage of a PERS:

I do wonder why maybe we don’t have the system that works anywhere we go, not just on campus. I have no idea what the facility [CCRC] pays somebody if anything for the service we have now. I have an opinion, [I am trying to] understanding that if we pushed a button now, it is answered, it’s monitored by someone on campus up at the nursing station. If we go to some other system, that’s good anywhere. I am not sure where that would be monitored I think that has to be reviewed, studied plus the cost angle to broaden the coverage.

**Monitoring the functioning of the device just once a year.** Participants from the local CCRC complained about having their PERS checked just once a year. Mr. D added his remarks on not having his PERS checked more frequently:
…because they could test it [PERS] one day and be all right and if the battery goes dead and six months later [it could be] or, even a day later, if you find that you don’t have a pendant working, you never know, I don’t recall they’re testing the battery. I don’t know when [CCRC checked his PERS’s battery] I don’t recall any time when I turned it in it has a battery. Batteries were replaced or recharged. I don’t know. I don’t think [If it could be] there is no recharge contact on there and whether they could do anything other than stick a knife in there and split it apart. I don’t know what the deal is on battery replacement.

Similarly, Mr. F explained how he eventually found out that his PERS was not working when he pressed the button to get a help for his wife and he also complained about having a delayed response:

I have never used it for myself. I have used it for my wife. But I sometimes have been known to push my own pendant to get [pause] a response. Then, one time we didn’t get any but a couple time we used it we did get response that was pretty rapidly. That’s the time we found out it was not working. I got the help eventually after getting on the phone. Well, I felt delay, maybe it was not important to them. Lost seconds can be very valuable to situation like that.

**Feeling overwhelmed and perceived lack of necessity.** Ms. E, who never wore her PERS, expressed her feelings of being overwhelmed with technology and how she felt about not having to wear a PERS by stating:

I think it is just technology. Sometimes, I get completely overwhelmed [with technology] but I think it’s the way to go I guess. And it’s going to be. I don’t mind. Some people have a feeling they don’t want to be like spied upon or you know they feel that doesn’t bother me at all. I don’t who wants to know. Really I am not paranoid that way. And in a fact that I had something they might I am afraid and this happens. If people wearing them at night, go to sleep and shut them [PERSs] up, wouldn’t that be horrible? Somebody had to come here at night and I don’t want to bother them [PERS service provider]. They have more important things to do.

Her further comments to the theme of a lack of perceived necessity:
Well, I don’t like the thought that I need it or that I might need it. No, I don’t like getting old. No, I wish I didn’t have to think about those things…when I see people and when we do exercise classes. I think I have better balance than most, you know I feel pretty secure. And, I know I think my bones aren’t… some people have their bones that are so weaker. [I] can’t even afford to do anything [physically demanding work]. And that’s a worry too. That I feel my bones are pretty strong right now and else that would be a worry.

She further stated:

When I was having trouble with my knee [last year, when she has a knee surgery], I thought maybe I better start [wearing a PERS]. Because I didn’t feel quite secure, on my feet. And when I think I noticed that my balance wasn’t quite as good or certainly if I have some dizzy spell or, something I’d definitely [wear it] and, I don’t know what else. Maybe I should just wear it anyway. Maybe I am foolish. Well, it is in a way I guess a pride that you have that you don’t need to wear it, which I don’t like face upto, but I mean it’s I feel like I am still ok that’s the way it is.

Together these quotes suggested there were several barriers associated with a PERS, including its’ appearance, of the material it is made of, making sure the device is serviced regularly the time it took the participants to get used to their PERS, and lack of perceived necessity. Overall, these barriers contributed to intermittent wearing of a PERS.
Discussion

As many older adults want to remain independent and age in place for as long as possible, researchers and practitioners have begun to rely on assistive technologies to help them succeed. PERSs can be thought of as a technological advance to compensate for the functional deficiencies at a later age and to promote aging well (Werner-Wahl et al., 2012). Using descriptive qualitative interviews, this study sought to better understand older adults’ experiences associated with having, using and activating a PERS.

Consistent with the existing literature (Fallis, et al.; Porter, 2003; Roush & Teasdale, 1997), although some participants subscribed to a PERS for personal safety, at least one participant reported having a PERS for a family member’s comfort. The participants who acquired their PERS for personal safety had previously either encountered a fall; contracted an acute health condition such as a heart attack or illness; or during rehabilitation, all of which are consistent with reasons identified in the literature (Dibner, 1990; Fallis et al., 2007; Levine & Tedeiskaar, 1995; McKennna et al., 2005). Finally, the CCRC from which participants were recruited was found to offer and charge for a PERS service along with other services it provided. Hence, participants who resided in the CCRC subscribed to a PERS for an institutional, rather than a personal and/or family reason, a finding which was not documented in the previous literature.

An important distinction between having a PERS, continuously wearing it and activating it to get help emerged from the participants’ responses. As noted previously (Porter, 2005), the participants who subscribed to a PERS on their own wore their PERS more regularly than those who got it as part of the CCRC’s service package or someone else asked them to have it. However, not all institutionalized participants had their PERS because of the institution; some had acquired their PERS on their own before they moved into the facility. Another example of the distinction between having, wearing and using a PERS was that participants rejoiced that they can make decisions whether to just keep their PERS handy rather than wearing it all the time, and/or to activate their PERS according to the severity of an acute event.

Regarding the activation of PERSs, the majority of PERS users reported they activated their PERS for health-associated reasons such as a fall, heart problem, or acute illness. These three motivations to use their PERS represent physiological benefits that were also identified in
previous studies (Mckenna et al., 2015). In contrast, previous research has not documented the use of PERS to get help for someone else, a finding that emerged from this study and contributes to the literature. This serves as another avenue for future studies on potential benefits of having a PERS.

Because many attributions participants made about having their PERS were positive and closely associated with the benefits of a PERS, there was some overlap between the two themes of the meaning attributed to having a PERS and benefits associated with a PERS. While the meaning of having PERS amongst the subscribers related to general perceptions about their PERS such as how it makes them feel mentally, they also stated how it contributed to their physical needs; for example the PERS prevented them from bothering their children when they needed immediate assistance. Participants’ PERSs provided safety, security, and got them help when needed, and these benefits led them to feel good about their PERS. These findings are congruent with the existing literature (Fallis et al., 2007; Mann et al., 2005; McKenna et al., 2015; Porter, 2003; Roush & Teasdale, 1997; Roush et al., 1995). Although PERS subscribers are assured that they can get quick help when needed, the concerns about being able to press the PERS that emerged from this study were also identified as crucial by Porter (2005). As previously identified by Dibner (1982), most of the participants were satisfied with their PERS service when they used it to get help. Consistent with previous literature, the psychological challenges associated with PERS were perceived lack of necessity, perceived lack of dignity, being dependent on and feeling overwhelmed with technology (Boström et al., 2011; Mahmood et al., 2008). These sentiments were similar to Porter and Ganong’s (2002) findings about why some individuals do not own a PERS; but, in this study, these feelings were also associated with not wearing a PERS after obtaining it. The decision to keep the PERS in the drawer echoes Porter’s (2005) finding of a perception of keeping a PERS handy was sufficient to secure help.

Consistent with Boström et al. (2011), having a PERS increased acceptance of technology as a part of life or as an accessory for the participants in this study. Additionally, feeling of safety and its affordability were other benefits identified by the participants. In terms of affordability, the participants from the community benefitted from having their PERS through the Elderly Support Program (ESP), a local levy-funded program that supports people with low income. On the other hand, the participants who resided in the CCRC appreciated that the cost of
their PERS was bundled along with other services the facility provided (for a fee). This finding contradicts Mann et al.’s (2005) finding that the expense associated with a PERS was a major barrier to subscribing to a PERS service.

Consistent with previous research (McKenna et al., 2015; Porter, 2003), the participants avoided wearing their PERS for certain activities and events. Participants reported taking their PERS off when they wanted to attend special events; to look prettier; if they were out of their residence because their PERSs had only a limited coverage; and/or if they were in the presence of their family members at their place. Several participants commented on the material the PERS was made of and their uneasiness associated with it (e.g., corrosion of the chain, the threads getting wet during shower, having sharp edges, getting tangled with other necklaces they wear). These reasons are similar to those reported by intermittent PERS wearers in existing studies (Mann et al., 2005; Porter, 2003). The above mentioned reasons for intermittent wearing were similar to the challenges associated with a PERS reported by the participants. One additional challenge mentioned by the participants living in the CCRC was that their PERSs were checked just once a year.

Despite the contributions this study makes to better understanding older adults’ perceptions associated with a PERS, it is also necessary to acknowledge several limitations. First, the sample only included PERS subscribers. Having only current subscribers in the sample might have prevented the identification of more serious challenges and perceptions that resulted in termination of a PERS subscription. It would be beneficial to include previous subscribers of PERSs, which would potentially provide a wider range of limitations associated with PERSs. In-depth qualitative studies can be conducted to explore the meaning of having a PERS among current PERS subscribers and past PERS subscribers. Second, although the goal of qualitative research is not to make broad generalizations about a larger population, a more diverse sample could have broadened our understanding of PERS process, including subscribing, and perceptions associated with the meaning and experience of having and using a PERS. However, the sample size of eight participants did result in saturation.

The findings of this study have four major implications. First, for facilities, future research can be conducted to evaluate whether the residents of facilities who have a PERS are more independent and if their transition to assisted living/a higher level of care can be delayed.
Institutions might be encouraged to include PERSs in the package of services they provide to residents and frequently monitor the functioning of the PERSs. Second, for manufacturers and designers, modification of PERSs with additional features that are more subscriber-friendly could attract more subscribers and increase the level of satisfaction as well. However, this would require more studies regarding the cost-effectiveness associated with such advanced PERSs and more in-depth research regarding the discrepancy between having, wearing and using this type of assistive technology. Third, a practice-related implication for policy makers is to promote financial support for PERS services, which ultimately reduces out of pocket expenses and could assure help during emergencies for a larger number of subscribers. Additional research could evaluate “best practices” among programs that provide PERSs to their clients. Finally, the implication for researchers is that this study opens several avenues for future studies. Future research might explore whether the motivations for having a PERS are associated with how it is or is not used.

In summary, the purpose of this study was to understand older adults’ experiences with and perceptions about their PERS. Among the strengths of this study are that the findings extend previous research to a sample that includes women and men and more state-of-the art PERSs. In addition, participants included older adults who live in the community as well as those who reside in independent housing in a CCRC. Although many of the findings from this research confirm findings from earlier research, a unique contribution is the distinction that participants made between having, using/wearing and activating a PERS. Another contribution to the literature is that some of the participants in this research subscribed to a PERS not by choice, either their own or their families’ but because it was provided to them as part of a package of services. With respect to actually using/wearing their PERS, there were some special occasions and certain activities during which participants chose to not wear their PERS because of the appearance/make of the PERS or because it got tangled with participants’ other jewelry. This suggests that designers could modify PERSs to make them more subscriber friendly. It is widely documented that health conditions triggered activation of a PERS. A unique contribution to the literature is that this study has identified “to get help for someone else” as a potential motivation to activate a PERS. With respect to the meaning that participants ascribe to their PERS, all identified security and safety. Only one negative perception---pride for not having to wear or use a PERS---emerged from this study. Regarding challenges associated with a PERS, the
subscribers felt the coverage of device was too limited. The participants from the CCRC expected the institution to monitor the functioning of their PERS more frequently rather than just once a year. Moreover, the results of this study suggest facilities, manufacturers, policy makers and future researchers to explore different approaches and possible modifications of a PERS to increase the subscription, consistent wearing and to ensure proper use of a PERS during emergencies.
References


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Appendix A Recruitment Advertisement for the newsletter

Do you have/had a Personal Emergency Response System?

If yes, please consider participating in a research conducted for a Master’s Thesis on Community-Dwelling Older Adults’ Perceptions of Personal Emergency Response System (PERS)

Participants will be sharing their experiences of using a PERS during an interview session approximately for 35-40 minutes.

You can participate in the research at the independent living at the Knolls of Oxford.

To schedule your participation at the Oxford Senior Center, please sign up on the ‘Use of Personal Emergency Response System’ sign-up sheet in the main office.

Your input could contribute significantly in understanding how the technology like PERS is perceived. The study could also act as a reference for PERS developers to impart improved services in the future.

Or, please contact Sunaina Rana at (513-593-8018), ranas@miamioh.edu
Appendix B Recruitment Script

Hello, I am Sunaina and I am a graduate student at Miami University. I am studying gerontology and I am here, today, to see if you would participate in my thesis research. My topic is ‘Older Adults’ Perceptions of Personal Emergency Response Systems (PERSs)/ Life Alert/Safe alert / pendant. This is the generic name for a pendant or a bracelet that allows you to press it if you need help. How many of you have used such devices or have heard about the PERS/ Life Alert/Safe alert /pendant.

These Personal Emergency Response Systems, or PERS, have helped older adults to live independently and have helped to secure during emergencies. As helpful as PERSs are, some people who have tried them do not like them. The purpose of my research is to identify the advantages and disadvantages of having a PERS.

I am looking for people who are living alone and have been using PERS for at least 3 months. I would like to interview you about your experiences with a PERS. The interview will approximately 40 minutes and we can do it in a location of your choice and will be tape recorded. If you are interested in this study please contact me, I will be looking for 10 participants. The fliers with the study and contact information are posted on the news board and also in the monthly newsletter. Thank you for your time!
Appendix C Consent to Participate in the Project

(Printed on MU Letterhead)

Community-Dwelling Older Adults’ Perceptions of Personal Emergency Response System (PERS)

Research Consent Form

The purpose of this research is to learn about your experiences with your PERS. The research is being conducted by Ms. Sunaina Rana, a graduate student of gerontological studies at Miami University, as part of the requirements for her Master of Gerontological Studies degree.

You will be interviewed for 35–40 minutes regarding your experiences having a PERS, including your likes and dislikes about the PERS. The interview will be audio-taped. The researcher would also like permission to contact you via telephone if clarifying anything in the interview is necessary. Participating in the research does not present any foreseeable risks. Your responses will be kept confidential and you can choose a pseudonym that can be used in the transcript and also in the report. The nature of your participation is completely voluntary and you can refuse to answer or to stop the interview session at any time without any penalty. The benefit is that you will contribute to a better understanding of barriers and advantages of using a PERS by sharing your experience. Overall, you will be sharing in-depth experience of using a PERS.

If you have questions regarding the study, please contact (Sunaina Rana) at (513-593-8018, ranas@miamioh.edu) or Dr. Jennifer Kinney, at (kinneyjm@miamioh.edu). If you have questions about your rights as a research participant, please call the Office of Advancement of Research and Scholarship at 513-529-3600 or email: humansubjects@miamioh.edu.

Thank you for your participation. We are grateful for your help and hope that this will be an interesting session for you.

I have read and had explained to me the requirements for participation above and I consent to participate in this research.

_________________    _____________________   _________
Printed Name    Signature     Date
Appendix D Interview Guide

(Prompts are italicized)

**Demographic and Background Information: 7-10 minutes**

1. Gender: □ Male □ Female

2. Age:

3. Race: □ White □ Hispanic □ African American
   □ Asian □ Native American □ Other

4. How long have you been living alone?

5. Has a doctor ever told you that you have any kind of medical condition which puts you at risk of a fall?

6. Have you fallen in the past year?
   
   If yes, please tell more about what led to the fall(s).

7. When did you first subscribe to a PERS? Are you still with that same service?

**Experience regarding PERS: 25-30 minutes**

8. Tell me about your decision to subscribe to PERS? *(Possible prompts: How did you come to a decision to subscribe a PERS? What was this a decision that you made on your own/was family involved in the decision? Was there a specific incident that led you to the decision? If a family member was involved in the decision, where do they live?)*

9. Is there anyone close by to check upon you on a regular basis?

10. What was the actual process of getting the PERS like? How much information and training were you given about how to use the PERS?

11. How do you use your PERS on a day-to-day basis? *(Are there some days that are different from other days? What about certain activities? When you say you “use” your PERS, what does that mean? Are there certain activities where you always (never) use the PERS? Please*
tell me about those. Do you have it all the time in a day? If not, how do you keep it when you do not wear it? Why, is there any particular reason?

12. Tell me about what it has been like to have the PERS service or what does having the PERS service meant to you.

13. In general what do you like about PERS? (design/service/portability)

14. In general, what do you not like about PERS? (design/service/any other)

15. Have you ever used the PERS to request help? (How many times have you done this? What happened? How was your experience?)

16. Tell me a story when you used PERS and it worked well. (What happened? What did you expect? Is it associated to service?)

17. Tell me a story when you used PERS and it didn’t work well. (What happened? What did you expect? Is it associated to service?)
### Appendix E Codebook

<table>
<thead>
<tr>
<th>Codes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category 1 Motivation to subscribe to a PERS</strong></td>
<td></td>
</tr>
<tr>
<td>Loneliness</td>
<td>Any time a participant mentions s/he has been living alone at least for three months</td>
</tr>
<tr>
<td>Fall risk</td>
<td>Any medical condition a participant has that put him/her at a risk of falls.</td>
</tr>
<tr>
<td>Prior fall experience</td>
<td>When a participant mentions an incident of fall as his/her past experience.</td>
</tr>
<tr>
<td>Family member's comfort</td>
<td>Any time a participant mentions that they subscribed a PERS for his/her family member/s/ children's comfort.</td>
</tr>
<tr>
<td>Safety</td>
<td>Any time a participant expresses the reason to subscribe a PERS is for safety.</td>
</tr>
<tr>
<td>Personal decision</td>
<td>Any time when a participant reports that s/he subscribes to a PERS on his/her own.</td>
</tr>
<tr>
<td>Institutional provision</td>
<td>Any time a participant mentions that s/he has a PERS subscription because the institution offered it.</td>
</tr>
<tr>
<td>Family involvement</td>
<td>Any time a participant mentions that their family member/s was/were involved in their decision to subscribe a PERS.</td>
</tr>
<tr>
<td><strong>Category 2 Motivation for not wearing a PERS</strong></td>
<td></td>
</tr>
<tr>
<td>Prettier look</td>
<td>When a participant mentions s/he does not wear the PERS to look prettier.</td>
</tr>
<tr>
<td>Taking it off</td>
<td>Any time a participant mentions when they took a PERS off for certain activities.</td>
</tr>
<tr>
<td>Shower/bathing</td>
<td>Any time a participant mentions s/he has concerns related to PERS while bathing/ having a shower.</td>
</tr>
<tr>
<td>No difference</td>
<td>When a participant mentions that having a PERS did not change anything in his/life</td>
</tr>
<tr>
<td>Not wearing at all</td>
<td>Any time a participant mentions s/he never wears it although s/he had it.</td>
</tr>
<tr>
<td>Pride</td>
<td>Any time a participant mention s/he feels proud for not having to use or wear the device</td>
</tr>
<tr>
<td>Lack of necessity</td>
<td>Any time a participant mentions s/he was not wearing because there was someone else with him/her.</td>
</tr>
<tr>
<td>Visual appearance</td>
<td>Any time when a participant mentions that s/he took it off because of its (PERS) appearance.</td>
</tr>
<tr>
<td><strong>Category 3 Motivation to activate a PERS</strong></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td>Any time a participant mentions s/he uses the PERS to get help when s/he fell</td>
</tr>
<tr>
<td>Heart problem</td>
<td>When a participant mentions that having a heart problem was a motivation to use a PERS to get a help.</td>
</tr>
<tr>
<td>Sickness</td>
<td>Any time a participant mentions s/he used a PERS to get help for sickness (Vomiting, Diarrhea)</td>
</tr>
<tr>
<td>Used PERS for someone else</td>
<td>Anytime a participant mentions s/he used PERS for someone else.</td>
</tr>
<tr>
<td>Codes</td>
<td>Description</td>
</tr>
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<td>---------------------</td>
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</tr>
<tr>
<td><strong>Category 4 Meaning of having a PERS</strong></td>
<td></td>
</tr>
<tr>
<td>Security</td>
<td>Any time when a participant expresses that a PERS means to them as a security/security for his/her children.</td>
</tr>
<tr>
<td>Safety-meaning</td>
<td>When a participant expresses that having a PERS means safety to them.</td>
</tr>
<tr>
<td>Good service</td>
<td>Any time when a participant mentions having a PERS means good service to him/her.</td>
</tr>
<tr>
<td>Feeling of goodness</td>
<td>When a participant mentions having a PERS means having a feeling of goodness.</td>
</tr>
<tr>
<td>Perceived need</td>
<td>When anybody states that PERS will be needed when the situation demands for</td>
</tr>
<tr>
<td>Get help</td>
<td>Any time a participant mentions having a PERS means getting a help.</td>
</tr>
<tr>
<td>A company</td>
<td>Any time a participant mentions that having a PERS means they are not alone and can get somebody if s/he needs them</td>
</tr>
<tr>
<td>Independence</td>
<td>Any time when a participant mentions having a PERS means having independence.</td>
</tr>
<tr>
<td><strong>Category 5 Benefits of a PERS</strong></td>
<td></td>
</tr>
<tr>
<td>Good experience</td>
<td>Any time when a participant mentions that s/he got the help s/e needed.</td>
</tr>
<tr>
<td>Affordable</td>
<td>When a participant mentions that subscribing a PERS was under his/her budget or has been supported by support program (Elderly Service program).</td>
</tr>
<tr>
<td>Accessory</td>
<td>Hidden cost: Any time a participant mentions s/he prefers that it is under hidden cost rather than out of pocket</td>
</tr>
<tr>
<td>Acceptance</td>
<td>When a participant considers having a PERS means a piece of jewelry / as an accessory to him/her.</td>
</tr>
<tr>
<td><strong>Category 6 Challenges associated with a PERS</strong></td>
<td></td>
</tr>
<tr>
<td>Forgot</td>
<td>When a participant mention that s/he forgot that they have a PERS when they required help.</td>
</tr>
<tr>
<td>Accidental activation</td>
<td>Any time a participant mentions that s/he activated the PERS without his/her knowledge when s/he was not seeking any help.</td>
</tr>
<tr>
<td>Uneasiness</td>
<td>Whenever a participant mentions that s/he felt uneasiness when they first subscribed it.</td>
</tr>
<tr>
<td>Limited coverage</td>
<td>Any time a participant mentions that s/he does not wear a PERS when they are going out of the institution because its coverage it limited.</td>
</tr>
<tr>
<td>Hesitancy</td>
<td>Any time a participant reports his/her concerns related to disclosing that s/he had used of PERS to get a help to others/ family members.</td>
</tr>
<tr>
<td>Comes loose</td>
<td>Any time participant mentions that the black thread around his/her necklace comes loose.</td>
</tr>
<tr>
<td>Malfunction</td>
<td>Any time a participant mention that his/her PERS did not work and s/e had it replaced.</td>
</tr>
<tr>
<td>Delayed</td>
<td>Any time a participant reports s/he had to wait longer than expected to get the</td>
</tr>
<tr>
<td>response</td>
<td>help they needed.</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Overwhelming</td>
<td>Any time a participant mentions use of PERS/technology is overwhelming for him/her.</td>
</tr>
<tr>
<td>Noise</td>
<td>Any time a participant mentions that s/he does not like the noise the PERS make</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td></td>
</tr>
<tr>
<td>Other sources</td>
<td>When a participant mentions that they had information about how to operate a PERS from somewhere else than the service provider.</td>
</tr>
<tr>
<td>Compliance</td>
<td>When a participant mentions s/he wears the PERS regularly.</td>
</tr>
<tr>
<td>Nearby</td>
<td>Any time a participant mentions that s/he put the PERS aside when s/he was not wearing it but put close enough so s/he can reach it when needed.</td>
</tr>
<tr>
<td>Inspired by someone else’s experience</td>
<td>Any time a participant mentions s/he subscribed a PERS because someone else they knew had it.</td>
</tr>
<tr>
<td>Assistive device</td>
<td>Any time participant mentions that s/he has been using assistive device (Walker, cane etc.).</td>
</tr>
<tr>
<td>Other devices</td>
<td>Anytime a participant mentions that s/he uses another device to get a help during emergencies.</td>
</tr>
<tr>
<td>Different forms of PERS</td>
<td>Any time a participant mentions s/he has a different form of PERS.</td>
</tr>
<tr>
<td>Information about how a PERS work</td>
<td>Any time a participant mentions what was told to them about how to use a PERS to call help.</td>
</tr>
<tr>
<td>Bracelet form of a PERS</td>
<td>Any time a participant mentions that s/he subscribed to a bracelet form of PERS.</td>
</tr>
</tbody>
</table>