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HEARING LOSS AND THIRD PARTY DISABILITY: A SYSTEMATIC REVIEW

by

KATHLEEN H. WALLACE

A capstone research project submitted to the Graduate Faculty in Audiology in partial fulfillment of the requirements for the degree of Doctor of Audiology, The City University of New York

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KATHLEEN H. WALLACE

This manuscript has been read and accepted by the Graduate Faculty in Audiology in satisfaction of the capstone project requirement for the degree of Au.D.

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ABSTRACT

HEARING LOSS AND THIRD PARTY DISABILITY: A SYSTEMATIC REVIEW

by

Kathleen H. Wallace

Advisor: Carol A. Silverman, Ph.D., M.P.H.

Objective: The purpose of this investigation is to conduct a systematic review of the quality of life (QoL), social, and emotional aspects of third party disability experienced by communication partners of persons with hearing loss (PHL), including a comparison of communication partners of users of hearing aids, users of cochlear implants, and unaided persons with hearing loss.

Methods: A comprehensive search utilizing various peer-reviewed databases accessible through the City University of New York (CUNY) Graduate Center Library was conducted to identify relevant studies evaluating quality of life, social, and emotional outcome measures of communication partners of persons with hearing loss (PHL). Inclusion criteria included studies that qualitatively or quantitatively measured outcomes of communication partners of PHLs. This included partners, spouses, children, and friends of individuals of hearing loss, and did not discriminate against amplification status of the person with hearing loss. Communication partners of users of hearing aids, users of cochlear implants, and unaided persons with hearing loss were therefore included.

Results: Fourteen articles met the inclusion criteria for this systematic review. The studies utilized a total of twenty-three different outcome measures, which were then categorized as a QoL, social, or emotional outcome measure. In addition, studies were separated according to amplification status of the person with hearing loss, with sections dedicated to communication

partners of users of hearing aids, users of cochlear implants, and unaided persons with hearing loss.

Discussion: Analysis of the included studies revealed a theme of negative quality of life, social, and emotional effects of the PHL's hearing loss on the communication partner, resulting in an increase in third party disability. Contrarily, a reduction in third party disability is observed following the PHL's hearing aid fitting, cochlear implantation, or completion of group aural rehabilitation. Differing degrees of third party disability were found in husbands and wives of PHLs, with wives being more affected by their partner's hearing loss than husbands. Furthermore, congruence of measures of hearing handicap differed dependent on the sexual orientation of the PHL and his/her significant other.

Conclusions: Communication partners of PHLs experience third party disability affecting one's QoL, social life, and emotional wellbeing. The findings of this investigation should inform the delivery of family-centered care, and encourage clinicians to incorporate communication partners in the PHL's hearing healthcare. Specifically, communication partners should be invited to participate in group aural rehabilitation programs to improve congruence. Audiologists must also utilize these findings in the counseling of PHLs to better understand the global effects of hearing loss beyond the PHL. Future research must explore the specific effects on third party disability dependent on the aided status of the PHL and the hearing status of the communication partner. Lastly, future studies should aim to corroborate the gender effect and sexual orientation effect observed in the included studies.

Key words: "hearing loss," "hearing impairment," "cochlear implant." "hearing aid," "significant other," "communication partner," "caregiver," "spouse," "aural rehabilitation," third party disability."

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INTRODUCTION

According to the National Institute on Deafness and Other Communication Disorders, approximately 37.5 million American adults aged 18 years and older report difficulty hearing, ranking it as the third most prevalent chronic condition in the United States (NIDCD, 2010). Older adults, in particular, are disproportionately affected by hearing loss, as the prevalence of hearing loss has been shown to increase with age. Two percent of adults aged 45 to 54 years, 8.5% of adults aged 55 to 64 years, and nearly 25% of those aged 65 to 74 years report disabling hearing loss, respectively. The prevalence of subjectively reported disabling hearing loss climbs to 50% for those aged 75 years and older.

Although 29 million U.S. adults could benefit from the use of hearing aids, uptake of amplification remains relatively low (NIDCD, 2015). Fewer than one in three adults aged 70 years and older who would benefit from hearing aids has ever used amplification. This figure decreases to 16% of hearing-aid candidates aged 20 to 69 years (NIDCD, 2010). The low penetration rate can be attributed to multiple factors, most notably denial, stigma, and lack of perceived benefit.

The findings of research have established the effects of hearing loss on one's health and wellbeing. Individuals with hearing loss may experience anxiety, frustration, reduced quality of life, fatigue, and loneliness (Ciesla, Lewandowska, & Skarzynski, 2015; Dewane, 2010; Dalton et al., 2003; Hogan, Phillips, Brumby, Williams & Mercer-Grant, 2015). Additionally, hearing loss has been linked to arthritis, falls, cognitive decline, poorer physical functioning, increased mortality, cardiovascular disease, and poorer health care satisfaction (Emamifar, Bjoerndal & Hanson, 2016; Criter & Honaker, 2013; Purchase-Helzner et al., 2004; Lin et al., 2013; Genther,

Frisk & Chen, 2013; Karpa et al., 2010; Gates, Cobb, D'Agostino & Wolf, 1993; Mick, Foley & Lin, 2014).

Despite the numerous comorbidities, hearing loss itself is often referred to as an invisible disability; one cannot identify a person with hearing loss by sight. This may result in an incredible misunderstanding of those with hearing loss by others and can place a burden on individuals with hearing loss. Mick et al. (2014) posit that hearing loss may decrease social interaction and decrease the satisfaction with one's social life, in turn, resulting in avoidance of the stresses of social interactions and withdrawal from interpersonal relationships.

Although research on significant hearing loss traditionally has ignored significant others, a number of studies in recent years have featured the role of significant others in one's hearing healthcare. Duijvestijn et al. (2003) concluded that significant others are often the first to notice hearing loss and that their persuasion is a key factor in prompting help-seeking behavior. Furthermore, social support is the strongest predictor of satisfaction with hearing aids; if those with whom one frequently communicates encourages the use of amplification, then the person with hearing loss is more likely to perceive benefit (Singh, Lau & Pichora-Fuller, 2015). Conversely, if family and friends have a negative attitude towards hearing aids, then they have the potential to delay the help-seeking process (Meyer & Hickson, 2012). According to the results of the MarkeTrak VII study, 28% of respondents consider the opinion of their spouse before pursuing amplification (Kochkin, 2007).

Yet, the two-way nature of communication results in hearing loss not impacting the person with hearing loss in isolation; hearing loss also adversely affects spouses, family members, and other frequent communication partners. The World Health Organization (2001) defined third party disability as the disability and functioning of family members resulting from

the health condition of significant others. Scarinci, Worall, and Hickson (2009) developed the Significant Other Scale for Hearing Disability (SOS –HEAR) to quantify the third party disability of hearing loss. Furthermore, Manchaiach, Stephens, and Lunner (2013) devised a schematic representation of how hearing loss affects both communication partners in the solar system of communication. This activity instructs the person with hearing loss to determine the most important and most frequent communication partners, and to assess the ease with which he or she communicates with them.

Kamil and Lin (2015) conducted a systematic review of the effects of hearing loss on communication partners. Although the authors concluded that hearing loss negatively impacts communication and quality of life, they stated that the effects of hearing impairment on the communication partner's mental health were unclear.

The purpose of this study is to perform a systematic review of the literature that addresses the quality of life, social, and/or emotional domains of third party disability experienced by communication partners of persons with hearing loss. Specifically, this review will assess how third party disability differs dependent on the aided status of the person with hearing loss. This analysis of the compilation of findings will contribute to a better understanding of the multitude of effects of hearing loss on communication partners and will identify fruitful areas for future research.

METHODS

A systematic review was conducted on peer-reviewed studies with qualitative or quantitative outcome measures of the quality of life (QoL), social, and emotional effects of hearing loss on communication partners. Key words utilized in the database search included combinations of the following terms: “hearing loss,” “hearing impairment,” “cochlear implant.” “hearing aid,” “significant other,” “communication partner,” “caregiver,” “spouse,” “aural rehabilitation,” and “third party disability.”

The PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) guided the inclusion of published studies in this systematic review. The PRISMA statement consists of a 27-item checklist and a four-phase flow diagram (Fig.1) to increase the transparency and improve the reporting of systematic reviews and meta-analyses (Moher, Liberatic, Tetzlaff & Altman, 2009).

This review utilized the following inclusion criteria: articles published in English; persons with self-reported or audiometric hearing loss having communication partners who served as subjects; and at least one outcome measure directly assessing the effects of hearing loss on the communication partner. For the purpose of this review, a communication partner was loosely defined as any meaningful person with whom the person with hearing loss (PHL) frequently communicates, such as a spouse, partner, child, parent, or friend. In addition, PHLs were not limited on the basis of amplification status; studies with communication partners of users of hearing aids, users of cochlear implants, and unaided PHLs were therefore included. Lastly, studies on congruence of outcome measures between the PHL and the communication partner were eligible for this review.

RESULTS

Figure 1 shows a PRISMA flowchart for the literature search and retrieval process of this systematic review. In total, the database search yielded 86 studies, with seven additional studies identified through review of referenced studies.

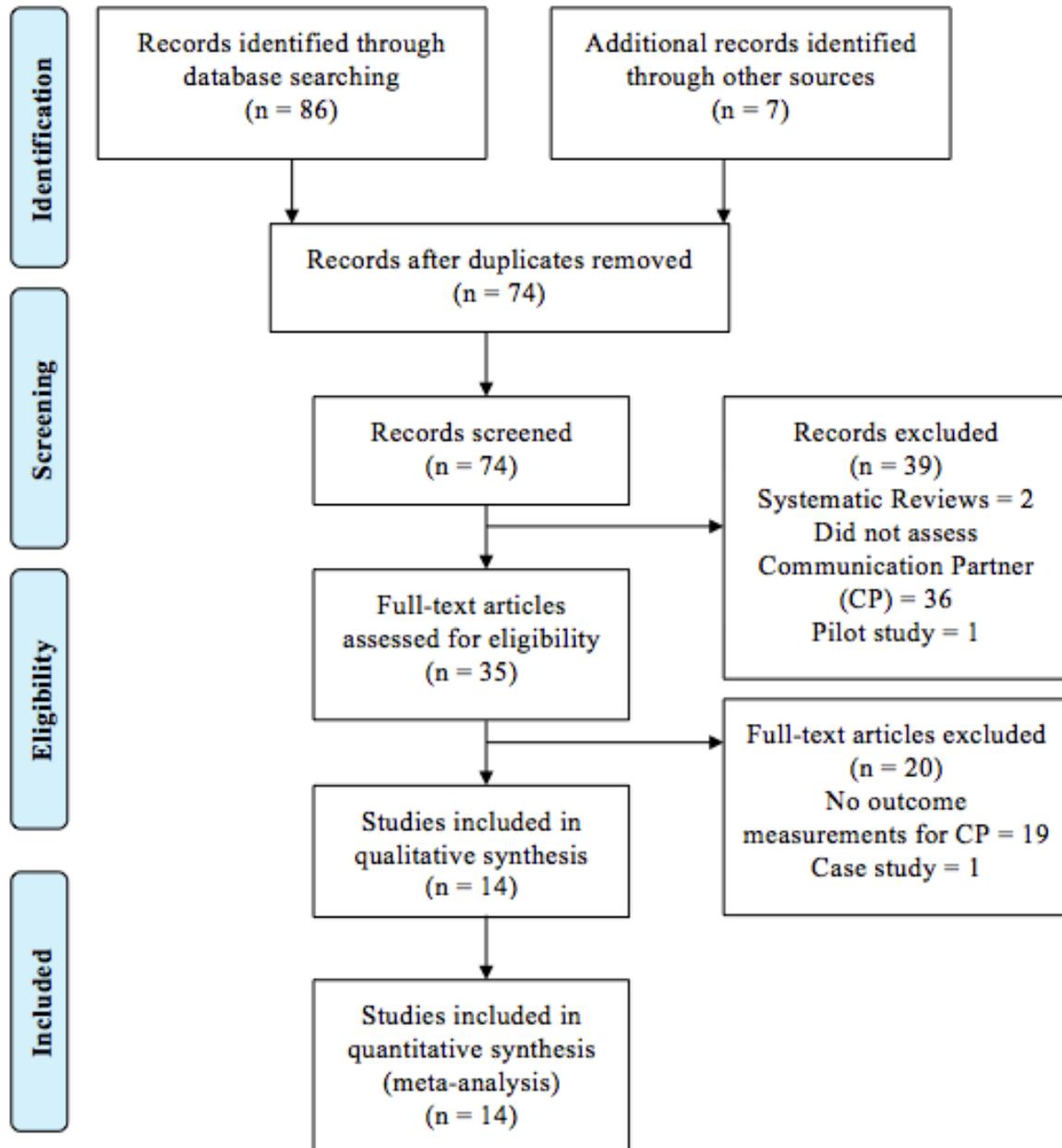


Figure 1. PRISMA flowchart. This figure illustrates the literature search, retrieval process, and selection of studies for this systematic review. The PRISMA Group (2009).

Eighty-six studies were identified through a search of PubMed and Medline, and an additional seven studies were selected for review through other sources, such as the review of relevant studies referenced in the selected studies. Upon removal of duplicates, 74 studies remained and were screened to ensure that the inclusion criteria were met. Following the screening of abstracts, 39 studies were excluded: 36 studies failed to directly assess an outcome measure for the communication partner, one study was a pilot study without data, and two additional studies were systematic reviews. The eligibility of the remaining 35 full-text articles then was reviewed. Nineteen additional studies were excluded due to a lack of a direct assessment of communication partners as well as one case study, yielding fourteen studies for further analysis.

Included articles were assessed for sample size, aided status of person with hearing loss, hearing status of communication partner, relation of communication partner to the person with hearing loss, timeline of study, independent variable, dependent variables, and results. Studies also were divided into subsections dependent on the aided status of the PHL. In addition, studies were categorized by the outcome measure utilized as a QoL, social, and/or emotional measurement of the effects of hearing loss on the communication partner.

Overview of Included Studies

Table 1 provides an overview of the included studies by study characteristics and PHL and communication partner characteristics. Study characteristics include the independent variable and relevant QoL, social, and/or emotional outcome measures elicited from the communication partner. Communication partner and PHL characteristics are classified as the aided status of the PHL, relation of the communication partner to the PHL, and hearing status of the communication partner.

Table 1

Overview of Included Studies

Study	IV ^a	Outcomes	PHL ^b Aided Status	Communication Partner Relation	Hearing Status
Ask et al. (2009)	HL ^c	E ^d	UNK ^f	P ^g	UNK
Chen et al. (2016)	CI ^h	QoL ⁱ , S ^j , E	CI	P	UNK
Habanec & Kelly-Campbell (2015)	GAR ^k	QoL, S	None	P	WNL ^l
Kelly & Atcherson (2011)	HL	QoL	None	P	WNL
Kelly-Campbell & Wendel (2015)	HA ^m	E	HA	P	WNL
Kennedy et al. (2008)	CI	S, E	CI	P	WNL
Knutson et al. (2006)	Time	S, E	CI	P	WNL
McNeil et al. (2011)	Baha ⁿ	QoL	Baha	P	WNL
Preminger & Meeks (2010a)	Mood	QoL, S, E	HA, CI	P	WNL
Preminger & Meeks (2010b)	GAR	QoL, S, E	HA, CI	P	WNL
Preminger et al. (2015)	HL	QoL, S, E	HA	C	WNL
Saki et al. (2017)	CI	E	CI	M ^o	UNK
Stark & Hickson (2004)	HA	QoL	HA	P, C, F ^p	UNK
Wallhagen et al. (2004)	HL	S, E	None, HA	P	UNK

Note: ^aIV = independent variable; ^bPHL = person with hearing loss; ^cHL = hearing loss; ^dE = emotional; ^fUNK = unknown; ^gP = partner; ^hCI = cochlear implant; ⁱQoL = quality of life; ^jS = social; ^kGAR = group aural rehabilitation; ^lWNL = within normal limits; ^mHA = hearing aids; ⁿBaha = bone anchored hearing aid; ^oM = mother; ^pF = friend.

Study characteristics. In 4 of the 14 studies (29%), the independent variable is hearing loss, including self-reported and audiometric hearing loss. Of the 14 studies, the amplification status is cochlear implantation in 3, hearing-aid fitting in 2, and a bone-anchored hearing-aid (BAHA) fitting in 1. Group aural rehabilitation was the independent variable in two studies. One study each assessed the effect of time and the effect of mood, respectively.

Categorization of outcome measures revealed the assessment of emotional outcomes in 10 of the 14 (71%) studies. Social outcomes were evaluated in 8 of the 14 (57%) studies, and QoL outcomes in 7 of the 14 (50%) studies.

Subject/PHL characteristics. Of the 14 studies, 4 (29%) feature communication partners of recipients of cochlear implants only; 3 (22%) feature communication partners of a

PHL with a unilateral or bilateral hearing-aid fitting only; 2 (14%) feature communication partners of an unaided PHL only; 2 (14%) feature communication partners of PHLs with a hearing aid fitting or cochlear implant; 1 (7%) features a communication partner of a PHL with a BAHA; 1 (7%) features the communication partner of a PHL whose amplification status was unknown; and 1 (7%) features the communication partner of a PHL with a hearing aid fitting or an unaided PHL.

Of the 14 studies, the communication partner was the partner or spouse of the PHL in 11 (79%). The communication partner was an adult child of the PHL in 1 (7%), the mother of a pediatric PHL in 1 (7%), and a friend, partner, or adult child of the PHL in 1 (7%).

In 9 of the 14 studies (64%), the communication partner had self-reported or audiometric hearing within normal limits, and in 5 of the 14 studies (36%), the hearing status of the communication partner was unknown.

Outcome Measures

Table 2 lists the various outcome measures utilized in the fourteen included studies. In total, twenty-three different QoL, social, and/or emotional outcome measures were featured. In addition, this table provides a description of each outcome measure, including the number of questions used, the response scale used, and the purpose of the measurement.

Table 2

<i>Description of Outcome Measures Used</i>			
<i>Title</i>	<i>Description</i>	<i>Type</i>	<i>Studies</i>
Bradburn Affect Balance Scale	8 item questionnaire; coded as negative affect greater (1) or positive affect greater (0)	E ^a	Wallhagen et al. (2004)
CAS	Cognitive Anxiety Scale; content analysis measure of responses to elicitation questions, coded and analyzed	E	Kelly-Campbell & Wendel (2015)
CPHI	Communication Profile of Hearing	QoL	Habanec &

<i>Title</i>	<i>Description</i>	<i>Type</i>	<i>Studies</i>
	Impaired; 145-item measure of adjustment, reaction, interaction, communication performance and communication importance	^b , S ^c	Kelly-Campbell. (2015)
DSM 12D	Diagnostic and Statistical Manual of Mental Disorders; 12 item questionnaire, coded as have (1) or have not experienced a depressive episode (0)	E	Wallhagen et al. (2004)
Feeling close to others	Self-Report; true/ false response to “it’s hard for me to feel close to others”	E	Wallhagen et al. (2004)
Happiness	Self-Report; pretty or very happy (1), not too happy (0)	E	Wallhagen et al. (2004)
HHI-SO	Hearing Handicap Inventory for Significant Others; 25-item 3- point response scale of social and emotional subscales of the significant other’s perceived impact of hearing loss on the partner	QoL, S, E	Kelly & Atcherson (2011), Preminger & Meeks (2010a; 2010b)
Hopkins Symptom Scale	25 item 4 point response scale for anxiety and depression	E	Ask et al. (2009)
ICF	International Classification of Functioning, Disability and Health developed by World Health Organization	S, E	Kennedy et al. (2008)
Marital Quality	Self-Report; yes/no response to whether their spouses gave them as much understanding as they needed	S	Wallhagen et al. (2004)
Mental Health	Self-Report; fair or poor (1), excellent or good (0)	E	Wallhagen et al. (2004)
MMPI	Minnesota Multiphasic Personality Inventory; true/false questions for depression, paranoia, and social introversion subscales only	E	Knutson et al. (2006)
Oxford Happiness Scale	29 item, 6-point response scale questionnaire	E	Saki et al. (2017)
PCI	Primary Communication Inventory; 25 item, 5-point response scale on communication in the marriage	S	Preminger & Meeks (2010a; 2010b)
PSS	Perceived Stress Scale; 10 item, 5-point response scale measuring how stressful one’s life is	E	Preminger & Meeks (2010a)
QDS	Quantified Denver Scale of Communication Function; a modified 20 item version for significant others	QoL	Stark & Hickson (2004)

<i>Title</i>	<i>Description</i>	<i>Type</i>	<i>Studies</i>
QoL Questionnaire	Close ended questions; derived from the Caregiver Strain, Index Relative, Client Satisfaction, Care Giving Burden questionnaires, and Quantified Denver Scale	QoL, S, E	Chen et al. (2016), McNeil et al. (2011)
Rosenberg Self-Esteem Questionnaire	10 item questionnaire that measures self-worth	E	Saki et al. (2017)
SAD	Social Avoidance and Distress Scale; 28 true/false items to quantify social anxiety	S, E	Knutson et al. (2006)
SF-36	Short Form Health Survey; 36 closed-set item questionnaire with physical functioning, role functioning, bodily pain, general health, vitality, mental health, emotional role limitations, and social functioning subscales	QoL	Stark & Hickson (2004)
SOS-Hear	Significant Other Scale for Hearing Disability; 36-item five-point response scale assessing third party disability	S	Habanec & Kelly-Campbell (2015)
Third Party Disability	Semi-structured interviews addressing the social and relational implications of hearing loss	S, E	Preminger et al. (2015)
UCLA Loneliness Scale	20-item, 4-point response scale of one's subjective feelings of loneliness	S	Knutson et al. (2006)

Note: ^aE = emotional and psychological; ^bQoL = quality of life; ^cS = social and interpersonal

Of the 23 outcome measures, 5 (22%) were classified as QoL assessments, two of which were utilized in multiple studies; the HHI-SO was featured in three studies and a QoL Questionnaire appeared in two studies. Of the 23 outcome measures, 10 (44%) were social or interpersonal outcome measures. The HHI-SO social subscale was used in 3 studies, the PCI was utilized in two studies, and a QoL Questionnaire was featured in two studies. Lastly, 16 of the 23 outcome measures (70%) were emotional or psychological assessments; the QoL Questionnaire appeared in two studies and the HHI-SO emotional subscale was utilized in three of the included studies.

Communication Partners of Users of Hearing Aids

Table 3, *Findings for Communication Partners of Users of Hearing Aids*, displays the included studies whereby PHLs used hearing aids. The table also lists hearing status of the communication partner and relation to the PHL as well as the timeline, independent variable, outcome measures, and study results. Kelly-Campbell and Wendel (2015) show the effect of hearing-aid fitting for the PHL on the communication partner's cognitive anxiety. Preminger and Meeks (2010b) display the effect of enrollment in group aural rehabilitation on the communication partner's hearing handicap, stress, and marital communication. Stark and Hickson (2004) demonstrate the effects of hearing-aid fitting of the PHL on the communication partner's hearing handicap and mental well-being. Wallhagen, Strawbridge, Shema, and Kaplan (2004) display the long-term effects of hearing loss on the communication partner's mental health, mood, closeness to others, and marital quality. In one-session studies, the congruence of findings between the PHL and communication partner (Preminger & Meeks, 2010a) or the themes that emerged during interviews with the communication partner (Preminger, Montano & Tjornhoj-Thomsen, 2015) is analyzed.

Table 3

Findings for Communication Partners of Users of Hearing Aids

Study	N	Hearing Status	Relation to PHL ^a	Timeline	IV ^b	Outcome Measure	Results
Kelly-Campbell & Wendel (2015)	32	WNL ^c	P ^d	Pre, post, 1 mo. f/u	HA ^e	CAS ^f	Initial- final ^g , Initial-post NS ^h , Post- final * Congruence: Initial NS, Post*, Final ⁱⁱⁱ
Preminger & Meeks (2010a)	104	WNL	P	OS ^j	Mood	HHI-SO ^k PSS ^l PCI ^m	Congruence** Congruence* Congruence NS
Preminger & Meeks (2010b)	72	WNL	P	Pre, post, 6 mo f/u	GAR ⁿ	HHI-SO PSS PCI	Pre- post*, Pre- 6 mo NS, Post- 6 mo* NS NS
Preminger et al. (2015)	12	UNK ^o	C ^p	OS	HL	Third party disability-interview	Coping strategies (effort, yelling, support) and feelings (frustration, uncertainty, loss)
Stark & Hickson (2004)	103	UNK	P, C, F ^q	Pre, post, f/u	HA	HHI-SO, SF-36 ^r , QDS ^s	HHI-SO NS, SF-36 NS QDS**
Wallhagen et al. (2004)	836	UNK	P	0 yr, 5 yr f/u	HL, Sex	DSM 12D ^t , mental health, Bradburn Affect Balance Scale, happiness, feeling close to others, marital quality	CP ^u , wives only [^] , husbands only NS

Note: ^aPHL= person with hearing loss; ^bIV= independent variable; ^cWNL= within normal limits; ^dP = partner; ^eHA= hearing aids; ^fCAS= cognitive anxiety scale; ^g*= p < .05; ^hNS= not significant; ⁱ**= p < .001; ^jOS= one session; ^kHHI-SO = Hearing Health Inventory for Significant Other; ^lPSS= perceived stress scale; ^mPCI = primary communication inventory; ⁿGAR = group aural rehabilitation; ^oUNK= unknown; ^pC = child; ^qF = friend; ^rSF-36 = Short Form Survey; ^sQDS = Quantified Denver Scale; ^tDSM 12D = Diagnostic and Statistical Manual of Mental Disorders; ^u^ = significant odds ratio (OR)

Of the 14 studies, 6 (43%) featured communication partners of users of hearing aids. In 3 of these 6 studies (50%), the communication partner had hearing within normal limits, whereas the hearing status of the communication partner was unknown in the other 3 studies (50%). In 4 of the 6 studies (67%), the communication partner of the PHL was the PHL's partner; in 1 study (17%), the communication partner of the PHL was the PHL's adult child; and in 1 study (17%), the communication partner of the PHL was either the PHL's partner, adult child, or friend.

In 2 of the 6 studies (33%) featuring communication partners of users of hearing aids, the PHL's use of hearing aids was the independent variable. These studies involved assessments of the communication partner prior to the PHL's hearing-aid fitting, immediately following the PHL's hearing-aid fitting, and upon follow-up after the PHL's hearing-aid fitting. Mood was utilized as the independent variable in 1 of these 6 studies (17%). In another 1 of these 6 studies (17%), the independent variable was enrollment in group aural rehabilitation. Specifically, measurements were performed prior to enrollment, following completion of the program, and at the six-month follow-up appointment. 2 of these 6 studies (33%) utilized hearing loss as the independent variable, with one of which also investigating gender.

Communication partners of users of hearing aids were assessed utilizing a variety of outcome measures. These included measures of cognitive anxiety, hearing handicap, perceived stress, communication in the marriage, third party disability, mental health, mood, happiness, feeling close to others, and marital quality.

Kelly-Campbell and Wendel's (2015) results reveal an improvement in the significant other's cognitive anxiety following the PHL's hearing-aid fitting. Specifically, a significant improvement in cognitive anxiety was observed from pre-fitting to the one-month follow-up session, as well as from immediately post-fitting to the one-month follow-up sessions. No

significant change in cognitive anxiety was noted from the pre- to post- fitting sessions. In addition, congruence of cognitive anxiety findings between the PHL and the significant other was examined. Significant differences in congruence between the PHL and significant other, or incongruence, were found during the post-fitting session and the one-month follow-up session. Specifically, significant others report significantly more cognitive anxiety than the PHL.

Preminger and Meeks (2010a) investigated the effects of mood on the perception of hearing loss related QoL in both PHLs as well as in their significant others. The results revealed that hearing handicap of the significant other is significantly correlated with stress, positive affect, and negative affect. Specifically, hearing handicap of both PHLs and their significant others was highly correlated with negative affect scores such that the higher the score for negative affect, the greater the degree of hearing handicap reported. The findings of regression analysis revealed that the hearing handicap differential, or incongruence, primarily is influenced by negative affect of the significant other ($r = -.509, p < .001$), stress in the significant other ($r = -.275, p < .05$) and positive affect in the significant other ($r = .242, p < .05$). Congruence between the PHL and the communication partner for communication in the marriage was not significant.

Preminger and Meeks (2010b) evaluated the effect of enrollment in group aural rehabilitation of both the communication partner and PHL on hearing handicap, stress, and marital communication. The results revealed that the significant other experienced a significant decline in hearing handicap from the pre-class to post-class visits as well as from the post-class to the 6-month follow-up session. Lastly, the congruence between hearing handicap of the PHL and the significant other significantly improved in the experimental group. No change was noted for the control group. Therefore, the authors concluded that the enrollment of the significant

other as well as the PHL in a group aural rehabilitation program improves the significant other's understanding of one's experience with hearing loss. The findings failed to reveal a significant change in marital communication or perceived stress from pre- to post- sessions in both groups and also failed to reveal significant differences in marital communication or perceived stress between groups.

Preminger et al. (2015) investigated the third party disability experienced by adult children of PHLs via semi-structured interviews. Multiple themes emerged among the communication partners; coping strategies such as increased effort, the need to yell, and the need to seek out support were reported. In addition, feelings of frustration, uncertainty, and loss emerged as themes of the communication partners' experience.

Stark and Hickson (2004) determined the effect of hearing-aid fitting of the PHL on the communication partner's hearing handicap and mental well-being. Upon comparison of pre-fitting to post-fitting measurements, no change in hearing handicap was observed. In addition, no significant change was observed in any of the eight subscales of the SF-36, a well-being measurement. However, a significant improvement in communication function was observed in the communication partner from pre-fitting to post-fitting sessions.

In Wallhagen et al.'s (2004) study, the effect of hearing loss on significant others was observed over a five-year period. All findings were compared to a control group of significant others of persons with normal hearing. The results demonstrated that communication partners of PHLs experience significantly increased odds for more depression, poorer mental health, more negative affect, less happiness, and less intimacy than communication partners of individuals without hearing loss. Upon comparison of gender, wives of PHLs experience increased odds in

all categories as compared to wives of persons without hearing loss. However, husbands of PHLs failed to reach significant odds in any of the measurements.

Communication Partners of Recipients of Cochlear Implants

Table 4, *Findings for Communication Partners of Users of Cochlear Implants*, shows the included studies whereby the PHL used a cochlear implant. The table lists the hearing status of the communication partner and relation to the PHL as well as the timeline, independent variable, outcome measures, and results of each study. The results of Chen et al. (2016) and Kennedy, Stephens, and Fitzmaurice (2008) indicate the communication partner's subjective change in QoL since the partner was implanted. Knutson, Johnson, and Murray's (2006) study design is quasi-longitudinal with participants divided into six cohorts dependent on year of implantation. Therefore, the results are presented as a comparison of outcome measures between cohorts as well as a comparison of married versus single recipients of cochlear implants. The findings of Preminger and Meeks (2010a) illustrate the congruence of findings between the PHL and the communication partner. The results of Saki et al. (2017) are displayed as the effects of the child with hearing loss' cochlear implantation on the mother's happiness and self-esteem. In Preminger and Meeks' (2010b) investigation, the results reveal the effect of enrollment of group aural rehabilitation on the communication partner's hearing handicap and marital communication.

Table 4

Findings for Communication Partners of Users of Cochlear Implants

Study	N	HL ^a	Relation	Timeline	IV ^b	Outcome Measure	Results
Chen et al. (2016)	86	UNK ^c	P ^d	OS ^e	CI ^f	QoL ^g Questionnaire	Less caregiver burden and stress, improvement in emotional well-being
Kennedy et al. (2008)	31	WNL ^h	P	OS	CI	ICF ⁱ	Benefit in psychosocial (16%), communication (88%), interpersonal interactions (39%), social life (14%)
Knutson et al. (2006)	178	WNL	P	OS	Time, MS ^l	MMPI ^j UCLA Loneliness Scale SAD ⁿ	NS ^k Married vs. single ^{m*} Main effect of cohort*
Saki et al. (2017)	40	UNK	M ^o	Pre, 1 yr f/u	CI	Oxford Happiness Questionnaire Rosenberg Self-Esteem Questionnaire	** **
Preminger & Meeks (2010a)	104	WNL	P	OS	Mood	HHI-SO ^p PSS ^q PCI ^r	Congruence** Congruence* Congruence NS
Preminger & Meeks (2010b)	72	WNL	P	Pre, post, 6 mo f/u	GAR ^s	HHI-SO PSS PCI	Pre- post*, pre- 6 mo NS, post- 6 mo* NS NS

Note: ^aHL = hearing loss; ^bIV = independent variable; ^cUNK = unknown; ^dP = partner; ^eOS = one session; ^fCI = cochlear implant; ^gQoL = quality of life; ^hWNL = within normal limits; ⁱICF = International Classification of Functioning, Disability and Health; ^jMMPI = Minnesota Multiphasic Personality Inventory; ^kNS = not significant; ^lMS = marital status; ^{m*} = p < .05; ⁿSAD = Social Avoidance and Distress Scale; ^oM = mother; ^pHHI-SO = Hearing Health Inventory for Significant Others; ^qPSS = Perceived Stress Scale; ^rPCI = Primary Communication Inventory; ^sGAR = group aural rehabilitation.

Of the 14 studies, 6 (43%) investigated communication partners of users of cochlear implants. In 2 of the 6 studies (33%), the hearing status of the communication partner was unknown whereas 4 of the 6 studies (67%) featured communication partners with hearing sensitivity within normal limits. In 5 of these 6 studies (83%), the communication partner was the partner of the PHL. In 1 of the 6 studies (17%), mothers of children with hearing loss served as the communication partner.

Communication partners of users of cochlear implants were assessed utilizing a variety of outcome measures. These included assessments of QoL, functioning, personality, loneliness, social avoidance and distress, happiness, self-esteem, hearing handicap, stress, and marital communication. Hearing handicap, stress, and marital communication were assessed in multiple of the included studies.

Chen et al. (2016) assessed the effect of the PHL's cochlear implantation on the significant other's QoL. The findings revealed that 80% of significant others experience a decrease in caregiver burden and stress, and 85% of significant others report an improvement in emotional wellbeing following the cochlear implantation of their partner.

Kennedy et al. (2008) assessed the effect of cochlear implantation on the significant other's functioning, disability, and health. Following cochlear implantation of their partner, 16% of communication partners experience a benefit in psychosocial well being, 88% report an improvement in communication, 39% note an improvement in interpersonal interactions, and 14% report an improvement in social life.

Knutson et al. (2006) examined the effects of the year of their partner's cochlear implantation on the significant other's personality, loneliness, and social avoidance. Specifically,

significant others were divided into six cohorts dependent on the year of their partner's implantation to determine if a difference in outcomes occurred over a seventeen-year period. No significant change in the emotional and psychological function occurred over time. However, a significant main effect of cohort was observed for social avoidance and distress of the communication partners; specifically, communication partners experience less social avoidance and distress over the course of time. Lastly, married recipients of cochlear implants are significantly less lonely than unmarried recipients.

Saki et al. (2017) revealed the effect of a child with hearing loss' cochlear implantation on the mother's well being, specifically, her happiness and self-esteem. The results revealed a significant improvement in the mother's happiness and self-esteem from prior to implantation to one year following her child's implantation.

Preminger and Meeks (2010a) assessed the effect of mood on the communication partner's hearing handicap, perceived stress, and marital communication. In addition, they also evaluated the congruence of these findings to those for the PHL. Significant congruence was noted for hearing handicap and mood. Specifically, both PHLs and significant others with higher negative affect scores report increased hearing handicap scores as compared to those having lower negative affect scores. The results of regression analysis revealed that the hearing handicap differential, or incongruence, primarily is influenced by negative affect of the significant other ($r = -.509, p < .001$), stress in the significant other ($r = -.275, p < .05$) and positive affect in the significant other ($r = .242, p < .05$). No significant findings for marital communication were observed.

Preminger and Meeks (2010b) evaluated the effect of enrollment in group aural rehabilitation on the communication partner's hearing handicap, perceived stress, and marital

communication at pre-enrollment, post- completion, and at the six-month follow-up appointment. A significant improvement in hearing handicap was observed from the pre- to post-group aural rehabilitation sessions and from the post- to 6-month follow-up sessions. No significant change was noted from the pre- to 6-month follow-up sessions. In addition, the congruence between hearing handicap of the PHL and the significant other improved in the experimental group. No significant change was noted for the control group. Therefore, the authors concluded that enrollment of the significant other with the PHL in a group aural rehabilitation program improves the significant other's understanding of one's experience with hearing loss. No significant findings were noted for perceived stress and marital communication over the course of these sessions.

Communication Partners of Unaided Persons With Hearing Loss

Table 5, *Findings for Communication Partners of Unaided Persons with Hearing Loss*, displays the included studies whereby the PHL was unaided. This table lists the hearing status of the communication partner and relation to the PHL as well as the timeline, independent variable, outcome measures, and study results. The results of Habanec and Kelly-Campbell (2015) show the effect of enrollment in group aural rehabilitation on the significant other's communication and third party disability. In the Kelly and Atcherson (2011) study, the results indicate congruence of findings between the PHL and significant other as well as a comparison of findings for same-sex and different-sex couples. Preminger and Meeks (2010a) display the congruence of findings between the PHL and the significant other. Wallhagen et al. (2004) show the long-term effects of hearing loss on the significant other's mental health, mood, happiness, closeness to others, and marital quality.

Table 5

Findings for Communication Partners of Unaided Persons With Hearing Loss

Study	N	HL ^a	Relation	Timeline	IV ^b	Outcome Measures	Results
Habanec & Kelly-Campbell (2015)	48	WNL ^c	P ^d	Pre, Post, 3 mo f/u	GAR ^e	CPHI ^f SOS-HEAR	Pre- post ^g ***, pre- f/u ^h **, post- f/u NS ^h Total ^h **, communication burden ^h **, socializing ^h **, emotional reaction ^h **, concern for partner ^h **
Kelly & Atcherson (2011)	40	WNL	P	OS ⁱ	HL, SO ^k	HHI-SO ^j	Different sex: E-subscale ^h **, S-subscale NS, total NS, Same sex: E-subscale NS, S- Subscale NS, total NS, Between groups: E-subscale ^h **, S-subscale NS, total NS
Preminger & Meeks (2010a)	104	WNL	P	OS	Mood	HHI-SO PCI ^l PSS ⁿ	Congruence ^h ** Congruence NS Congruence ^m *
Wallhagen et al. (2004)	836	UNK	P	0 yr, 5 yr f/u	HL, Sex	DSM 12D ^o Mental Health Bradburn Affect Balance Scale Happiness Feeling close to others Marital quality	^p ^, wives only^, husbands only NS ^, wives only^, husbands only NS

Note: ^aHL = hearing loss; ^bIV = independent variable; ^cWNL = within normal limits; ^dP = partner; ^eGAR = group aural rehabilitation; ^fCPHI = Communication Profile of Hearing Impaired; ^g*** = $p < .01$; ^hNS = not significant; ⁱOS = one session; ^jHHI-SO = Hearing Health Inventory for Significant Others; ^kSO = sexual orientation; ^lPCI = Primary Communication Inventory; ^m* = $p < .05$; ⁿPSS = perceived stress scale; ^oDSM 12D = Diagnostic and Statistical Manual of Mental Disorders; ^p^ = significant odds ration (OR).

Of the 14 studies, 4 (29%) investigated the effects of hearing loss on communication partners of PHLs who do not utilize amplification. Of the 4 studies, 3 (75%) included communication partners with hearing sensitivity within normal limits and 1 included a communication partner whose hearing status was unknown. These four studies featured a significant other as the communication partner.

In these four studies, communication partners were assessed utilizing outcome measures of communication, hearing handicap, stress, mental well-being, mood, happiness, closeness to others, and marital quality.

Habanec and Kelly-Campbell (2015) evaluated the effect of enrollment in group aural rehabilitation on the communication partners' communication and third party disability at pre-enrollment, post-completion, and at the three-month follow-up sessions. The results revealed a significant improvement in communication from pre- to post- group aural rehabilitation sessions as well as from the pre- to three-month follow-up sessions. No significant change was observed from the immediate post- to three month follow-up sessions. With regard to third party disability, a significant reduction in the significant other's disability was noted for all domains in the SOS-HEAR. This included significant improvements in communication burden, socializing, emotional reaction, and concern for partner.

Kelly and Atcherson (2011) investigated the effects of hearing loss on the significant other's hearing handicap as well as whether these findings were dependent on the sexual orientation of the couple. Specifically, the effects on significant others of same-sex couples were compared to the effects experienced by significant others of different-sex couples. Lastly, measurements of the congruence of findings between the PHL and the significant other were evaluated within sexual orientation and across sexual orientation.

In different-sex couples, the results revealed a significant difference in the emotional subscale, with no significant difference in the social subscale or total score between the PHL and the significant other. These findings are indicative of incongruence on only the emotional subscale. In same-sex couples, no significant differences are found between the significant other and PHL, suggestive of congruence between the PHL and significant other. Upon comparison of different-sex and same-sex couples, a significant difference in the emotional subscale is observed; no significant differences are noted for the social subscale or for total scores.

Preminger and Meeks (2010a) evaluated the effect of mood on the communication partner's hearing handicap, perceived stress, and marital communication. In addition, they also examined the congruence of these findings for the PHL. Significant congruence is noted for hearing handicap and mood. Specifically, both PHLs and significant others with higher negative affect scores report increased hearing handicap scores as compared with those who report lower negative affect scores. The findings of regression analysis revealed that the hearing handicap differential is primarily influenced by negative affect of the significant other ($r = -.509, p < .001$), stress in the significant other ($r = -.275, p < .05$) and positive affect in the significant other ($r = .242, p < .05$). No significant findings are noted for marital communication.

Wallhagen et al. (2004) observed the effect of hearing loss on significant others over a five-year period. All findings were compared to a control group of significant others of PHLs. The results revealed that significant others of PHLs experience significantly increased odds for more depression, poorer mental health, more negative affect, less happiness, and less intimacy as compared to significant others of individuals without hearing loss. Upon comparison of gender, wives of PHLs experience significant increased odds in all categories as compared to wives of

persons with normal hearing. However, husbands of PHLs do not statistically differ from husbands of persons with normal-hearing sensitivity

QoL Findings for Communication Partners

Table 6, *Quality of Life Findings for Communication Partners of Persons with Hearing Loss*, shows all QoL outcome measures for the communication partner in the included studies. This table lists the amplification status of the PHL, hearing status of the communication partner, and relation to the PHL. In addition, the timeline, independent variable, dependent variables, and results of each study are listed. Chen et al. (2016) and McNeil, Gulliver, Morris, and Bance (2011) report the communication partner's subjective change in QoL since their partner was implanted (Chen et al.) or received a BAHA (McNeil et al.). Habanec and Kelly-Campbell (2015) show the effect of enrollment in group aural rehabilitation on the communication partner's communication and third party disability. In Kelly and Atcherson's (2011) study, the results indicate congruence of findings between the PHL and the significant other as well as a comparison of findings for same-sex and different-sex couples. Preminger and Meeks (2010a) display the congruence of findings between the PHL and the communication partner. In the Preminger and Meeks (2010b) investigation, the results reveal the effects of group aural rehabilitation on the significant other's hearing handicap. Stark and Hickson (2004) demonstrate the effect of hearing-aid fitting of the PHL on the communication partner's mental health.

Table 6

Quality of Life Findings for Communication Partners of Persons with Hearing Loss

Study	N	PHL ^a AS ^b	CP ^c HL ^d	Relation	Timeline	IV ^e	DV ^f	Results
Chen et al. (2016)	86	CI ^g	UNK ^h	P ⁱ	OS ^j	CI	QoL ^k questionnaire	Less caregiver burden and stress, improvement in emotional wellbeing.
Habanec & Kelly-Campbell (2015)	48	None	WNL ^l	P	Pre, Post, 3 mo f/u	GAR ^m	CPHI ⁿ SOS-HEAR	Pre- post ^o **, Pre- f/u ^{**} , Post- f/u NS ^p Total**
Kelly & Atcherson (2011)	40	None	WNL	P	OS	HL, SO ^t	HHI-SO ^q	Different sex: E subscale**, S subscale NS, total NS; Same sex: E NS, S NS, total NS; Between groups: E**, S NS, total NS
McNeil et al. (2011)	90	Baha ^s	WNL	P	OS	Baha	QoL questionnaire	Social ^t , emotional*
Preminger & Meeks (2010a)	104	HA ^u , CI, none	WNL	P	OS	Mood	HHI-SO	Congruence**
Preminger & Meeks (2010b)	72	HA, CI	WNL	P	Pre, post, 6 mo f/u	GAR	HHI-SO	Pre- post*, Pre- 6 mo NS, Post- 6 mo*
Stark & Hickson (2004)	103	HA	UNK	P, C ^v , F ^w	Pre, post, f/u	HA	SF-36 ^x QDS ^y	NS **

Note: ^aPHL = person with hearing loss; ^bAS = aided status; ^cCP = communication partner; ^dHL – hearing loss; ^eIV = independent variable; ^fDV = dependent variable; ^gCI = cochlear implant; ^hUNK = unknown; ⁱP = partner; ^jOS = one session; ^kQoL = quality of life; ^lWNL = within normal limits; ^mGAR = group aural rehabilitation; ⁿCPHI = Communication Profile of Hearing Impaired; ^o** = p < .01; ^pNS = not significant; ^qHHI-SO = hearing health inventory for significant others; ^rSO = sexual orientation; ^sBaha = bone anchored hearing aid; ^t* = p < .05; ^uHA = hearing aids; ^vC = child; ^wF = friend; ^xSF-36 = Short Form Health Survey; ^yQDS = Quantified Denver Scale

Of the 14 studies, 7 (50%) evaluated the QoL of communication partners of PHLs. Of these 7 studies, 2 studies (28.5%) involved communication partners of unamplified PHLs; 1 study (14.3%) involved communication partners of users of cochlear implants; 1 study (14.3%) involved communication partners of bone anchored users of hearing aids; 1 study (14.3%) involved communication partners of users of hearing aids; 1 study (14.3%) involved communication partners of users of hearing aids, users of cochlear implants and unamplified PHLs; and 1 study (14.3%) involved communication partners of users of hearing aids and users of cochlear implants. In 5 of the 7 studies (71%), the communication partner had hearing sensitivity within normal limits. In the remaining 2 of the 7 studies (29%), the hearing status of the communication partner was unknown. The communication partner was defined as the significant other of the PHL in 6 of the 7 studies (86%) and was more broadly defined as partner, adult child, or friend of the person with hearing loss in 1 of the 7 studies (14%).

In the seven studies, the communication partners' QoL was assessed utilizing multiple outcome measures. These included measurements of hearing handicap only in three studies, hearing related quality of life only in two studies, communication and third party disability in one study, and wellbeing and communication in one study.

In Chen et al.'s (2016) study, the effects of the PHL's cochlear implantation on the significant other's QoL were investigated. The findings indicated that significant others experience a reduction in caregiver burden and stress and an improvement in emotional wellbeing following their partner's implantation.

Habanec and Kelly-Campbell (2015) probed the effect of enrollment in group aural rehabilitation on the significant other's communication and third party disability over time: at the pre-enrollment, post-completion, and three-month follow-up sessions. The results revealed a

significant improvement in communication from the pre- to post-sessions as well as from the pre- to three-month follow-up sessions. No significant changes are observed from the post- to the three-month follow-up measurements. In regards to third party disability, a significant improvement in SOS-HEAR score is observed from the pre- to post-sessions.

Kelly and Atcherson (2011) investigated the effects of hearing loss on the significant other's quality of life, as well as its congruence to the PHL's QoL. In addition, they conducted an investigation into the effect of sexual orientation on these measurements; specifically, the investigators assessed if findings for same-sex couples differed from those for different-sex couples. In different sex couples, a significant difference between the PHL and the significant other is observed on the emotional subscale of hearing handicap, indicative of incongruence. No significant differences are found for the social subscale or overall score. For same-sex couples, no significant differences are observed for the emotional or social subscale as well as the total score, a reflection of congruence. Upon comparison of same-sex and different-sex couples, a significant difference is noted for the emotional subscale; same-sex couples demonstrate more congruence than different-sex couples. No significant differences are noted for the social subscale or total score.

McNeil et al (2011) evaluated the effect of the PHL's BAHA on the communication partner's QoL. Their measurements utilized a QoL questionnaire. The findings exhibited significant improvements on social and emotional subscales of the significant other following their partner's use of a BAHA.

In the investigation of Preminger and Meeks (2010a), the effects of mood on the significant other's hearing handicap were analyzed. The results demonstrated significant congruence in hearing handicap and negative affect between the PHL and the communication

partner. Specifically, the authors concluded that when the spouses are incongruent on negative affect, they also are incongruent on hearing handicap.

Preminger and Meeks (2010b) investigated the effects of enrollment in group aural rehabilitation on the significant other's hearing handicap at pre-enrollment, post-completion, and at the six-month follow-up appointment. The results revealed a significant reduction in hearing handicap from the pre- to post-rehabilitation as well as from the immediately post- to six-month follow-up sessions. No significant change was noted from the pre-enrollment to the six-month follow-up session. In addition, the congruence between hearing handicap of the PHL and the significant other improved in the experimental group. No change was noted for the control group. Therefore, the authors concluded that the enrollment in a group aural rehabilitation program with the PHL improves the significant other's understanding of one's experience with hearing loss.

Stark and Hickson (2004) assessed the effects of the PHL's hearing aid fitting on the mental wellbeing and communication of the communication partners. No significant change in the communication partner's mental well-being occurred from pre- to post hearing-aid fitting. However, communication significantly improved following the partner's hearing-aid fitting.

Social Findings for Communication Partners

Table 7, *Social Findings for Communication Partners of Persons with Hearing Loss*, displays all included studies with social and interpersonal outcome measures for the communication partner. This table lists the amplification status of the PHL, hearing status of the communication partner, and relation to the PHL. In addition, the timeline, independent variable, dependent variables, and results of each study are listed. Chen et al. (2016) and Kennedy et al. (2008) report the communication partner's subjective change in QoL since the partner was

implanted. Kelly and Atcherson (2011) indicate the degree of congruence of findings between the PHL and the communication partner, as well as a comparison of findings for same-sex and different-sex couples. Knutson et al.'s (2006) study design is quasi-longitudinal with participants divided into six cohorts dependent on year of implantation. Therefore, the results are presented as a comparison of outcome measures between cohorts as well as a comparison of married versus single recipients of cochlear implants. Preminger and Meeks (2010a) report on the congruence of findings between the PHL and the communication partner. Preminger et al. (2015) display the emerging themes following interviews with communication partners. Habanec and Kelly-Campbell (2015) indicate the effect of enrollment in group aural rehabilitation on the significant other's communication and third party disability. Preminger and Meeks (2010b) demonstrate the effect of enrollment in group aural rehabilitation on the communication partner's hearing handicap. Wallhagen et al. (2004) examine the long-term effects of hearing loss on the communication partner's closeness to others and marital quality.

Table 7

Social Findings for Communication Partners of Persons with Hearing Loss

Study	N	PHL ^a	AS ^b	CP ^c	HL ^d	Relation	Timeline	IV ^e	DV ^f	Results
Chen et al. (2016)	86	CI ^g		UNK ^h		P ⁱ	OS ^j	CI	Questionnaire	Less caregiver burden
Habanec & Kelly-Campbell (2015)	48	None		WNL ^k		P	Pre, post, 3 mo f/u	GAR ^l	SOS-HEAR ^m SO-CPHI ^p	Relationship change ^{**n} , socializing ^{**} , Main effect NS ^o Interaction domain pre- post ^{**} , pre- f/u ^{**} , post- f/u NS
Kelly & Atcherson (2011)	40	None		WNL		P	OS	HL, SO ^q	HHIE/SO ^r	Congruence same sex NS Congruence different sex NS
Kennedy et al. (2008)	31	CI		WNL		P	OS	CI	ICF ^s	Interpersonal interaction: 39% improvement; Social life: 14% improvement
Knutson et al. (2006)	178	CI		WNL		P	OS	Time, MS ^t SAD ^v Mood	UCLA Loneliness Scale PCI ^x	Married vs. single ^{*u} Congruence NS
Preminger & Meeks (2010a)	104	HA ^w , CI, none		WNL		P	OS			
Preminger & Meeks (2010b)	72	HA, CI		WNL		P	Pre, post, 6 mo f/u	GAR	HHI-SO PCI	Pre- post*, Pre- 6 mo NS, Post- 6 mo* NS
Preminger et al. (2015)	12	HA		UNK		C ^y	OS	HL	Third party disability	Themes: support, effort, loss
Wallhagen et al. (2004)	836	None, HA		UNK		P	0 yr, 5 yr f/u	HL, Sex	Close to others Marital quality	^z ^, wives^, husbands NS ^z ^, wives^, husbands NS

Note: ^aPHL = person with hearing loss; ^bAS = aided status; ^cCP = communication partner; ^dHL = hearing loss; ^eIV = independent variable; ^fDV = dependent variable; ^gCI = cochlear implant; ^hUNK = unknown; ⁱP = partner; ^jOS = one session; ^kWNL = within normal limits; ^lGAR = group aural rehabilitation; ^mSOS-HEAR = Significant Other Scale for Hearing Disability; ⁿ** = p < .01; ^oNS = not significant; ^pSO-CPHI = significant other communication profile of hearing impaired; ^qSO = sexual orientation; ^rHHI-SO = Hearing Handicap Inventory for Significant Others, HHIE = Hearing Handicap Inventory for the Elderly; ^sICF = International Classification of Functioning, Disability and Health; ^tMS = marital status; ^u* = p < .05; ^vSAD = Social Avoidance and Distress scale ^wHA = hearing aids; ^xPCI = Primary Communication Inventory; ^yC = child; ^z^ = significant odds ratio (OR).

Of the 14 studies, 9 (64%) evaluated social or interpersonal findings for communication partners of PHLs. Of the 9 studies, 3 (33%) included communication partners of users of cochlear implants only, two (22%) focused on communication partners of unamplified PHLs only, and one (11%) included communication partners of users of hearing aids only. Additionally, 1 of the 9 studies (11%) included communication partners of users of hearing aids, users of cochlear implants and unamplified persons with hearing loss; 1 study (11%) focused on communication partners of users of hearing aids and users of cochlear implants; and 1 study (11%) included communication partners of users of hearing aids and unamplified PHLs. With regard to the communication partner, 6 of the 9 studies (67%) included communication partners with hearing within normal limits, with the hearing status unknown in the other 3 studies (33%). In 8 of the 9 studies (89%), the communication partner was the significant other of the PHL and in 1 of the 9 studies (11%), the communication partner was specified as the adult child of the PHL.

Communication partners were assessed utilizing multiple outcome measures evaluating hearing handicap, communication, functioning, loneliness, third party disability, closeness to others, and marital quality. Specifically, three studies evaluated hearing handicap, and two studies featured communication evaluations. The following outcome measurements appeared in one study each: daily functioning, loneliness, QoL, third party disability, feeling close to others, and marital quality.

Chen et al. (2016) investigated the effects of the PHL's cochlear implantation on the significant other's QoL were investigated. On the social and interpersonal dimensions, the investigators found that significant others report a reduction in caregiver burden following their partner's implantation, as measured on a QoL questionnaire.

Habanec and Kelly-Campbell (2015) examined the effects of enrollment in group aural rehabilitation on the significant other's hearing disability and communication at pre-enrollment, post-completion, and at the three-month follow-up appointment. The results displayed a significant improvement in the relationship and socializing domains following completion of the group aural rehabilitation program. A significant improvement in the interaction domain also was noted from the pre- to post-sessions as well as from the pre- to three-month follow-up sessions; no significant change was noted from the immediate post- to the three-month follow-up session.

Kelly and Atcherson (2011) investigated the effect of hearing loss of the significant other's QoL, and the congruence of this finding with the PHL's QoL. They further analyzed congruence within sexual orientation of the couple; in both same-sex and different-sex couples, the Hearing Handicap Inventory score differential was not statistically significant. These findings are indicative of congruence on measures of QoL between the PHL and the significant other within couples of each sexual orientation.

Kennedy et al. (2008) evaluated the effect of the PHL's cochlear implantation on the significant other's interpersonal interactions and social life. The results revealed that 39% of significant others report an improvement in interpersonal interaction following the cochlear implantation of their partner. In addition, 14% of significant others note an improvement in social life following the implantation.

In Knutson et al.'s (2006) study, the effects of time and marital status on one's loneliness were examined. The results revealed a significant difference in loneliness between married versus single recipients of cochlear implants. Specifically, married implant recipients report

significantly less loneliness than single implant recipients. This suggests the role of a relationship and a significant other in the success of an implantation.

Preminger and Meeks (2010a) explored the effect of mood on marital communication. In order to investigate congruence, couples were divided into three groups: couples in which the PHL reported more hearing handicap than the significant other; couples in which the PHL reported less hearing handicap than the significant other; and couples in which the PHL and the significant other both reported similar levels of hearing handicap. The results indicated no significant differences in PCI scores among the three groups. This finding held when the PHL rated the communication in the marriage as well as when the significant other rated the communication in the marriage. These results are indicative of congruence in marital communication between the PHL and the significant other.

In Preminger and Meeks's (2010b) study, the effect of enrollment in group aural rehabilitation on the significant other's hearing handicap was evaluated at pre-enrollment, post-completion, and at the six-month follow-up appointment. The results revealed a significant improvement in the communication partner's hearing related QoL from the pre- to post-group aural rehabilitation sessions and from the post- to six-month follow-up sessions. No significant difference in HHI-SO scores was identified from the pre- to 6-month follow-up sessions. In addition, the congruence between hearing handicap of the PHL and the significant other improved in the experimental group but not in the control group. Therefore, the investigators concluded that the enrollment of the significant other as well as the PHL in a group aural rehabilitation program improves the significant other's understanding of one's experience with hearing loss.

Preminger et al. (2015) investigated the effects of hearing loss on the third party disability experienced by adult children of PHLs. The results were obtained via semi-structured interviews with adult children who regularly see their parent with hearing loss. Emerging themes from these interviews included the need for support, increased effort to communicate, and a feeling of loss.

Wallhagen et al. (2004) researched the effects of hearing loss on the significant other's self-reported closeness to others and marital quality. They took measurements five years apart and searched for any gender effect; specifically, they investigated whether wives of PHLs reported differently than husbands of PHLs. The results revealed that significant others of PHLs are at significantly increased odds of poorer marital quality and poorer closeness to others as compared with significant others of persons with normal hearing. Upon comparison of gender, wives of PHLs are at significantly increased odds of poorer marital quality and closeness to others than wives of persons with normal hearing. Interestingly, the odds ratio for husbands of PHLs does not statistically differ from that of husbands of persons with normal hearing.

Emotional Findings for Communication Partners

Table 8, *Emotional Findings for Communication Partners of Persons with Hearing Loss*, shows all included studies with emotional or psychological outcome measures for the communication partner. This table lists the amplification status of the PHL, hearing status of the communication partner, and relation to the PHL. In addition, the timeline, independent variable, dependent variables, and results of each study are listed. Ask, Krog, and Tambs (2009) investigated the mental health of spouses of PHLs and spouses of persons with normal hearing. Chen et al. (2016) and Kennedy et al. (2008) described the significant other's subjective change in QoL since the partner was implanted. Knutson et al.'s (2006) study design is quasi-

longitudinal with participants divided into six cohorts dependent on year of implantation. Therefore, the results are presented as a comparison of outcome measures between cohorts, as well as a comparison of married versus single recipients of cochlear implants. Preminger et al. (2010a) illustrated the congruence of findings between the person with hearing loss and their communication partner. Preminger et al. (2015) displayed the emerging themes following interviews with adult children of users of hearing aids. In Kelly-Campbell and Wendel's (2015) investigation, the results indicate the effect of the PHL's hearing-aid fitting on the significant other's cognitive anxiety. In the Preminger and Meeks (2010b) study, the results revealed the effect of enrollment in group aural rehabilitation on the significant other's hearing handicap. Saki et al. (2017) described the effect of the child with hearing loss' cochlear implantation on the mother's happiness and self-esteem. Wallhagen et al. (2004) demonstrate the long-term effects of hearing loss on the significant other's mental health, mood, and happiness.

Table 8

Emotional and Psychological Findings for Communication Partners of Persons with Hearing Loss

Study	N	PHL ^a AS ^b	CP ^c HL ^d	Relation	Timeline	IV ^e	DV ^f	Results
Ask et al. (2009)	18210	UNK ^g	UNK	P ^h	OS ⁱ	HL	Hopkins Symptom Checklist	NS ^j Self-reported HL ^{**k}
Chen et al. (2016)	86	CI ^l	UNK	P	OS	CI	Questionnaire	Improvement in stress, well-being
Kennedy et al. (2008)	31	CI	WNL ^m	P	OS	CI	ICF ⁿ	Psychosocial benefit 16%
Kelly-Campbell and Wendel (2015)	32	HA ^o	WNL	P	Pre, post-1 mo f/u	HA	CAS ^p	Pre- post ^{*q} , Pre- f/u NS, Post-f/u*, Congruence: initial NS, post*, final**
Knutson et al. (2006)	178	CI	WNL	P	OS	Time, MS ^s	MMPI ^r SAD ^t	NS Main effect of cohort*
Preminger and Meeks (2010a)	104	HA, CI, none	WNL	P	OS	Mood	HHI-SO ^u PSS ^v	Congruence** Congruence*
Preminger and Meeks (2010b)	72	HA, CI	WNL	P	Pre, post, 6 mo f/u	GAR ^w	HHI-SO PSS	Pre-post*, Pre-f/u NS, Post-f/u* NS
Preminger et al. (2015)	12	HA	UNK	C ^x	OS	HL	Third party disability	Themes: frustration, uncertainty, loss
Saki et al. (2017)	40	CI	UNK	M ^y	Pre, 1 yr f/u	CI	Oxford Happiness Scale Rosenberg Self-Esteem Questionnaire	** **
Wallhagen et al. (2004)	836	None, HA	UNK	P	0 yr, 5 yr f/u	HL	DSM 12D ^z Mental health Bradburn Affect Balance Scale Happiness	^{^aa} , wives [^] , husbands NS [^] , wives [^] , husbands NS [^] , wives [^] , husbands NS [^] , wives [^] , husbands NS

Note: ^aPHL = person with hearing loss; ^bAS = aided status; ^cCP = communication partner; ^dHL = hearing loss; ^eIV = independent

Study	N	PHL ^a	AS ^b	CP ^c	HL ^d	Relation	Timeline	IV ^e	DV ^f	Results
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variable; ^fDV = dependent variable; ^gUNK = unknown; ^hP = partner; ⁱOS = one session; ^jNS = not significant; ^k** = p < .01; ^lCI = cochlear implant; ^mWNL = within normal limits; ⁿICF = International Classification of Functioning, Disability and Health; ^oHA = hearing aids; ^pCAS = cognitive anxiety scale; ^q* = p < .05; ^rMMPI = Minnesota Multiphasic Personality Inventory; ^sMS = marital status; ^tSAD = Social Avoidance and Distress Scale ; ^uHHI-SO = Hearing Handicap Inventory for Significant Others; ^vPSS = perceived stress scale; ^wGAR = group aural rehabilitation; ^xC = child; ^yM = mother; ^zDSM 12D = Diagnostic and Statistical Manual of Mental Disorders ; ^{aa}^ = significant odds ratio (OR).

Of the 14 studies, 10 (71%) investigated the psychological or emotional effects of hearing loss on communication partners. Of the 10, 4 (40%) included recipients of cochlear implants only, 2 (20%) featuring users of hearing aids only, and 1 (10%) included PHLs for whom aided statuses were unknown. Additionally, 1 (10%) study featured users of hearing aids, users of cochlear implants, and unaided PHLs; 1 (10%) study included users of hearing aids and users of cochlear implants; and 1 (10%) study featured users of hearing aids and unaided PHLs. Of these 10 studies, 5 (50%) involved communication partners having hearing sensitivity within normal limits and 5 (50%) included communication partners whose hearing status was unknown. In 8 of the 10 studies (80%), the communication partner was the significant other of the PHL. One additional study featured adult children of PHLs and another study focused on mothers of children with hearing loss.

Various outcomes measures were utilized to evaluate the emotional and psychological effects of hearing loss on the communication partner. These included assessments of mental well-being, daily functioning, cognitive anxiety, social avoidance, hearing handicap, stress, third party disability, mood, happiness, and self-esteem. Multiple outcome measures were utilized in one study; however, two studies each assessed both hearing handicap and happiness.

Ask et al. (2009) investigated the effects of hearing loss on the significant other's anxiety and depression, and if these findings differed dependent on whether the PHL's hearing loss was measured or self-reported. The results revealed that the PHL's measured hearing loss has no main effect on the significant other's anxiety and depression, regardless of the gender of the spouse. Nevertheless, a significant relation was identified between PHL's self-reported hearing loss and female spouse's anxiety ($p = .001$) and depression ($p = .041$). No significant relations

were identified between a PHL's self-reported hearing loss and the male spouse's anxiety or depression.

Chen et al. (2016) assessed the effects of the PHL's cochlear implantation on the significant other's wellbeing via a QoL questionnaire. The results revealed that significant others report a decline in stress and an improvement in mental well-being following their partner's implantation.

Kelly-Campbell and Wendel (2015) studied the effects of the PHL's hearing-aid use on the significant other's cognitive anxiety prior to their partner's hearing aid fitting, following the fitting, and at the one-month follow-up appointment. The results revealed a significant improvement in cognitive anxiety in the significant other from pre- to post-fitting sessions as well as from the post-fitting to one-month follow-up sessions; no significant change occurred between the pre-fitting and one-month follow-up sessions. A significant difference in congruence of cognitive anxiety between the PHL and the significant other was obtained at the post-fitting and one-month follow-up sessions; no significant difference was found at the pre-fitting session. The observed incongruence was attributed to significant others experiencing higher levels of cognitive anxiety than the PHLs.

Kennedy et al. (2008) also investigated the effects of cochlear implantation of the PHL on the significant other's disability and functioning via the International Classification of Functioning, Disability, and Health (ICF). The findings revealed that 16% of significant others receive psychosocial benefit from their partner's implantation.

Knutson et al. (2006) studied the effects of year of cochlear implantation of the PHL on the significant other's mental well-being and social distress over a seventeen-year period. Recipients of cochlear implants and their significant others were divided into six 3-year cohorts

for comparison. No significant difference in the significant others' depression and social introversion was obtained among cohorts. A statistically significant main effect of cohort on the social avoidance and distress was obtained such that social anxiety scores declined over the six cohorts and, therefore, over time.

Preminger and Meeks (2010a) investigated the effects of mood on hearing handicap and perceived stress, and congruence between PHL and significant other on these measures. A significant differences in handicap between the PHLs and significant others, indicative of incongruence of handicap was found, and a correlation between the hearing handicap differential, or incongruence, and stress in the significant other ($r = -.275, p < .05$) was observed.

Preminger and Meeks (2010b) evaluated the effects of enrollment in group aural rehabilitation on the hearing handicap of significant others of PHLs at the pre-enrollment, the post-completion, and the six-month follow-up appointment. A significant reduction in hearing handicap was noted from the pre- to post sessions as well as from the post- to six-month follow-up appointments; no significant change was observed from the pre- to six-month follow-up sessions. In addition, the congruence between hearing handicap of the PHL and the significant other improved in the experimental group but not in the control group. Therefore, the authors concluded that the enrollment of the significant other as well as the PHL in a group aural rehabilitation program improves the significant other's understanding of one's experience with hearing loss. Lastly, no significant change was found for perceived stress among all sessions.

In Preminger et al. (2015), semi-structured interviews were conducted with the adult children of users of hearing aids to assess third party disability. Upon analysis of these interviews, the communication partners expressed themes of frustration, uncertainty, and loss in regards to their parents' hearing loss.

In an investigation of the effects of the cochlear implantation of children with hearing loss on mothers' emotional well-being, Saki et al. (2017) measured happiness and self-esteem prior to the child's implantation and at the one-year follow-up session. The mother's happiness and self-esteem significantly improved following the child's implantation.

Wallhagen et al. (2004) studied the effects of hearing loss on the significant other's mental well-being in measurements obtained five years apart. Specifically, significant others of PHLs were compared to significant others of persons with normal hearing. In addition, the investigators explored a potential gender effect by comparing the findings of spouses by gender. Significant others of PHLs are at significantly increased odds to be depressed, report poorer mental health, have poorer affect balance, and to be less happy when compared to significant others of normal hearing persons. Upon separating by spouse gender, wives of persons with hearing loss are seen to be at increased odds for depression, poor mental health, poor affect balance, and less happy as compared to wives of persons with normal hearing. Interestingly, however, husbands of PHLs are not statistically different than husbands of persons with normal hearing on any of the outcome measures.

DISCUSSION

The purpose of this investigation was to perform a systematic review of the existing literature on the QoL, social, and emotional aspects of third party disability on communication partners of PHLs. Furthermore, this research aimed to determine if these effects differed dependent on the aided status of the PHL, or on the relationship of the communication partner to the PHL. Lastly, the results were analyzed to determine if communication partners and PHLs report congruently on the effects of hearing loss on one's life.

Emerging Themes

The included studies indicate that communication partners of PHLs experience multiple negative effects associated with the PHL's hearing loss. Communication partners of PHLs report feelings of frustration, loss, and uncertainty in regards to the PHL's hearing loss, and state that coping with the PHL's hearing loss requires more effort, yelling, and support (Preminger et al., 2015). Furthermore, spouses of PHLs are at significantly increased odds to be more depressed, have poorer mood, be less happy, feel less close to others, and have poorer marital quality as compared with spouses of persons with normal-hearing sensitivity (Wallhagen et al., 2004).

Multiple investigators, however, have indicated positive effects on the communication partner after the PHL is fit with hearing aids, receives a cochlear implant, receives a BAHA, or completes a group aural rehabilitation program. These findings include a reduction in caregiver burden, cognitive anxiety, hearing handicap, perceived stress, and concern for partner (Chen et al., 2016; Kelly-Campbell & Wendel, 2015; Preminger & Meeks, 2010b; Habanec & Kelly-Campbell, 2015). In addition, communication partners experience an improvement in communication, happiness, self-esteem, and social life (Habanec & Kelly-Campbell, 2015; Saki et al., 2017; Kennedy et al., 2006).

Congruence Between PHLs and Communication Partners

In addition to assessments of third party disability, a selection of the included studies measured the congruence of the effects of hearing loss on the PHL and his/her communication partner. Kelly-Campbell and Wendel (2015) concluded that communication partners and PHLs are incongruent on measures of cognitive anxiety; specifically, significant others of PHLs experience significantly higher levels of cognitive anxiety than PHLs following the PHL's hearing-aid fitting. Another study, however, found that enrollment of both the communication partner and the PHL in group aural rehabilitation improves the congruence of hearing handicap in the experimental group only. This finding suggests that the participation of the communication partner along with the PHL in group aural rehabilitation improves the communication partner's understanding of the PHL's experience with hearing loss (Preminger & Meeks, 2010b).

When the communication partner and PHL differ in reports of hearing handicap, the incongruence is most strongly influenced by the communication partner's mood and levels of stress, rather than by measurements of the PHL (Preminger & Meeks, 2010a). Kelly and Atcherson (2011) added to these findings through their analysis of hearing handicap differential dependent on the sexual orientation of the PHL and his/her spouse. Their findings suggest that communication partners of both same-sex and different-sex couples have a good understanding of their partner's social and overall hearing handicap. Communication partners in different-sex couples, however, tend to underestimate the emotional impact of hearing loss on their spouse whereas same-sex couples remain congruent in this subscale.

Relationship of Communication Partners to PHLs

Whereas the majority of the studies highlighted significant others of PHLs, they also featured adult children of PHLs, mothers of pediatric PHLs, and friends of PHLs as the

communication partner. Similar trends of third party disability were found across all types of communication partners. The results revealed that significant others of PHLs are at increased odds to be more depressed, have poorer mood, be less happy, feel less close to others, and have poorer marital quality. Interestingly, the results revealed that wives of PHLs and husbands of PHLs differed in third party disability. Although wives of PHLs are adversely affected by their partner's hearing loss in measurements of mood, depression, happiness, closeness to others, and marital quality, husbands are unaffected by their partner's hearing loss on all of these measures. This finding suggests that wives of PHLs experience greater third party disability than husbands of PHLs (Wallhagen et al., 2004).

When the PHL is fit with hearing aids, significant others experience a reduction in cognitive anxiety (Kelly-Campbell & Wendel, 2015). Upon the cochlear implantation of the PHL, significant others report an improvement in social life and a decrease in caregiver burden (Chen et al., 2016). After participation in group aural rehabilitation, significant others note less hearing handicap, stress, concern for partner, and a better understanding of the PHL's experience with hearing loss (Habanec & Kelly-Campbell, 2015; Preminger & Meeks, 2010b).

Alternatively, adult children of PHLs report feelings of frustration, loss, and uncertainty associated with their parent's hearing loss, and that coping with the hearing loss requires more effort, yelling, and support (Preminger et al., 2015). Mothers of pediatric PHLs experience more happiness and higher self-esteem following the cochlear implantation of their child (Saki et al., 2017). In the one study that expanded the definition of communication partners to include partners, adult children, or friends, communication partners reported improved communication following the hearing-aid fitting of the PHL (Stark & Hickson, 2004).

Limitations

Considerable variability in sample size is noted upon analysis of the included studies. The smallest sample size features 12 subjects with the largest sample size including 18,210 participants (Preminger et al., 2015; Ask et al., 2009). This large range can be attributed to study design; the larger sample sizes appear in cross-sectional epidemiological studies whereas smaller sample sizes were utilized in studies with more specific patient populations, such as the semi-structured interviews of adult children of PHLs ($n = 12$) or the assessment of communication partners of PHLs with untreated hearing loss in same-sex and different-sex couples ($n = 40$) (Preminger et al., 2015; Kelly & Atcherson, 2011).

The lack of specificity of inclusion criteria in some of the selected studies also should be noted. Three of the included studies featured multiple aided statuses of PHLs, and the aided status of PHLs was unknown in another study (Preminger & Meeks, 2010a; Preminger & Meeks, 2010b; Wallhagen et al., 2004; Ask et al., 2009). Furthermore, the hearing status of communication partners was unknown in five of the included studies (Ask et al., 2009; Chen et al., 2016; Saki et al., 2017; Stark & Hickson, 2004; Wallhagen et al., 2004). This variability introduces confounding variables that threaten the validity of the study's findings. Findings may have differed had amplification status of the PHL been independently analyzed. Similarly, the hearing status of the communication partner can alter the findings of a study; if a communication partner has hearing loss, then he/she may be affected differently by the PHL's hearing loss than a communication partner with normal-hearing sensitivity.

In addition, the variability in study design may undermine the reliability of findings. Multiple studies were structured as experimental studies with pre-, post- and follow-up measurements to isolate the effects of the PHL's hearing aid fitting, cochlear implantation, or

completion of group aural rehabilitation on the communication partner. In contrast, Chen et al. (2016) opted to administer a QoL questionnaire after the PHL's cochlear implantation to retrospectively assess how the implantation of the PHL improved the communication partner's QoL. Since they did not administer the questionnaire pre-implantation, they were unable to perform a statistical comparison on findings at pre- versus post-implantation sessions. Furthermore, multiple studies were designed as longitudinal studies, which introduce multiple confounding variables over the course of the study that may alter the subjects' responses.

Lastly, the variability on outcome measures utilized should be noted. The 14 selected studies featured a total of 23 different outcome measures, unequally distributed among the QoL, social, and emotional domains of third party disability. The largest number of outcome measures was classified as an emotional measurement whereas the fewest number of outcomes measures was classified as a QoL assessment. Within each domain, most of the outcome measures were utilized in only one of the included studies. This lack of consensus of outcome measures utilized prevents the ability to corroborate the findings across studies. The large number of outcome measures utilized, however, demonstrates the wide range of implications of hearing loss on third party disability.

Clinical Implications

These findings demonstrate the global effects of hearing loss beyond simply the PHL, and the depth of third party disability experienced by communication partners of PHLs. The results of these studies should encourage clinicians to include communication partners in the hearing healthcare journey of PHLs to facilitate a better understanding of the PHL's experience with hearing loss. Specifically, this research supports the involvement of communication partners in group aural rehabilitation programs to improve congruence of hearing-related QoL

between the PHL and the communication partner. Lastly, clinicians should draw on these findings when administering family-centered care to properly counsel PHLs on the negative effects of untreated hearing loss and the positive effects of hearing intervention on their communication partners.

Future Research

Future research should address the limitations of the included studies, such as isolating the third party disability experienced by communication partners of PHLs of each aided status. Similarly, a more thorough investigation should be conducted into how third party disability differs dependent on relation to the PHL. This should include research to corroborate the gender effect demonstrated by Wallhagen et al. (2004) and the sexual orientation effect observed by Kelly and Atcherson (2011). Furthermore, future research should determine if the hearing status of communication partners affects the third party disability, and if it impacts the congruence of findings between communication partners and PHLs.

CONCLUSIONS

This systematic review aimed to assess the third party disability experienced by communication partners of PHLs, and how these QoL, social, and emotional effects differed dependent on the aided status of the PHL. Furthermore, the included studies were analyzed to determine the congruence of findings between the communication partner and PHL.

Communication partners of PHLs experience varying degrees of third party disability affecting their QoL, social life, and emotional wellbeing. The untreated hearing loss of PHLs results in multiple negative effects on the PHL. On the other hand, positive effects on the communication partner following the PHL's hearing aid fitting, cochlear implantation, or enrollment in group aural rehabilitation are also observed. Furthermore, these findings support the conclusion that wives of PHLs experience greater third party disability than husbands of PHLs, and that same-sex and different-sex couples differ in congruence of hearing related QoL. Mothers of pediatric PHL, adult children of PHLs, and friends of PHLs are also featured in one study each. Overall findings indicate that all communication partners, regardless of the specific relationship to the PHL, experience negative effects of the PHL's hearing loss and positive effects of the PHL pursuing a form of hearing intervention, including hearing aids, cochlear implants, or group aural rehabilitation programs.

These findings are supportive of the involvement of communication partners and/or family members in the hearing healthcare journey, specifically the participation of communication partners in group aural rehabilitation programs. Clinicians should utilize these findings to inform their counseling of PHLs through family-centered care. Furthermore, medical professionals should cite these findings in developing a better understanding of the complexity and depth of third party disability.

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