Intergenerational care: an exploration of consumer preferences and willingness to pay for care

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ABSTRACT

Objectives: To identify feasible models of Intergenerational Care programs, that is care of children and older people in a shared setting, to determine consumer preferences and willingness to pay.

Method: Feasible models were constructed in extensive consultations with a panel of experts using a Delphi technique (n=23) and were considered based on their practical implementation within an Australian setting. This informed a survey tool that captured the preferences and willingness to pay for these models by potential consumers, when compared to the status quo. Information collected from the surveys (n=816) were analysed using regression analysis to identify fundamental drivers of preferences and the prices consumers were willing to pay for Intergenerational Care programs.

Results: The shared campus and visiting models were identified as feasible Intergenerational Care models. Key attributes of these models included: respite day care; a common educational pedagogy across generations; screening; monitoring; and evaluation of participant outcomes. Although parents were more likely to take up Intergenerational Care compared to the status quo, adult carers reported a

higher willingness to pay for these services. Educational attainment also influenced the likely uptake of Intergenerational Care.

Conclusions: The results of this study show that there is demand for the shared campus and the visiting campus models among the Australian community. The findings support moves towards consumer-centric models of care, in line with national and international best practice. This consumer centric approach is encapsulated in the Intergenerational Care model and enables greater choice of care to match different consumer demands.

Introduction

Intergenerational care refers to models of care that bring together older people and children in a shared setting for their mutual benefit through activities aimed at meeting specific life goals (Wadsworth and Whitehouse 2007). Benefits of intergenerational care are multiple with psychological and behavioural benefits, including improved attitudes towards aging and children's perceptions about older persons (Cummings, Williams, and Ellis 2002; Femia et al. 2008; Heyman, Gutheil, and White-Ryan 2011; Jarrott and Bruno 2007), increased generational empathy (Generations United 2013), and improved pro-social behaviour of sharing, helping and cooperating (Dellman-Jenkins, Lambert, and Fruit 1991). These programs have also been shown to increase social engagement, confidence, and resilience (Femia et al. 2008; Hayes 2003). Research on the life-course theory identifies the importance of adult support structures early in childhood to improve confidence, security and lower incidences of bullying and antisocial behaviour (Whitten et al. 2016).

The purpose of this study is to identify feasible models of intergenerational care (i.e. care of children and older people in a shared setting) to determine consumer preferences and willingness to pay for these services. While intergenerational programs are increasing in popularity in both the United States (DeVore, Winchell, and Rowe 2016) Europe and United Kingdom (Sanches 2009), in Australia these programs are in their infancy (e.g. Grandfriends program by Dr Lee Fay Low; Intergenerational choir program (Skropeta, Colvin, and Sladen 2014); the KITE program by Churches of Christ; the Children's Family Center; and the Messiah Village Retirement Community (Hirn 2007)). These programs typically operate in residential aged care facilities, lack a formalised program based on educational pedagogy, and do not monitor or evaluate participant outcomes. While the psychological aspects of mixing generations are often reported, there is little documented research of other outcomes associated with intergenerational interactions such as improved quality of life, cognitive skills and independence.

These are important outcomes to investigate because the changing economic, demographic and social pressures in Australia have resulted in an increased need for quality and cost effective care arrangements for both older people and young children (Baxter 2002). Accompanying the increasing demand for formal care services is the lack of supply of such care. Evidence shows that finding appropriate care for both older and younger people[1] is difficult (Australian Bureau of Statistics 2015; Brady and Perales 2013) and/or is not well suited to the person in need (Vecchio et al. 2016) (see (Phillipson, Magee, and Jones 2013b). For instance, although carers of people who are living with dementia report the need for more respite services, (Vecchio et al. 2015) the utilisation of existing services is low (see (Phillipson et al. 2013b). Some reasons for this mismatch between service use and need include a lack of trust in service providers (Neville et al. 2014), and a lack of satisfaction with the current services available (Neville et al. 2014; Phillipson, Jones, and Magee 2013a). Consequently stakeholders require an understanding of client preferences and need for respite services to ensure greater responsiveness, sustainability of programs and improved outcomes for clients.

The underutilisation of respite services and the shortages of child care places indicate that alternative services may supplement available services and/or better suit the needs of the individual and their family. Preferable respite services may include intergenerational care programs that encourage the care of children and older people in a shared setting. These programs have a beneficial impact on younger and older participants and may provide a more suitable option for some families seeking care arrangements. Availability of innovative services, however, does not guarantee uptake. This requires clever planning of community respite care. There is, currently no research that has developed viable models of intergenerational care and examined their feasibility in the Australian setting. Furthermore, there is no research on client preferences for these alternate models of care.

[1] Yet in 2014, there were 248,600 children whose parent reported a need for additional formal child care Australian Bureau of Statistics. 2015. "Childhood Education and Care, Australia, June 2014. cat. no. 4402.0.".

Identifying preferred attributes of these service will allow the incorporation of client views into service planning, thereby improving the likelihood of the future uptake of these models.

Intergenerational programs can take many forms such as: preschool children visiting age care homes and informally interacting with residents; older people mentoring younger children either in a class room, childcare or activity based setting. Intergenerational programs are prevalent in European and United States of America. While there are no known counts of programs per se, Generations United (Generations United 2016) presents an overview of the United States of America programs and the European Network for Intergenerational Learning (European Network for Intergenerational Learning 2011). In this study, however, we were particularly interested in intergenerational care, which is a specific type of program that involves the *caring* of older and younger people in a shared setting under the supervision of a formally trained caregiver. The purpose of this investigation was to improve respite options for caregivers and recipients with the intention to improve quality of life for participants and their families. Providing greater opportunities for younger and older people to engage more fully within their communities and preventing older people from prematurely entering residential care are some of the many benefits these intergenerational care models can offer.

Objectives of the study

The objectives of this study were to:

1. Identify feasible models of intergenerational care in the Australian setting.
2. Estimate the preferences for intergenerational care models against the traditional/usual model.
3. Estimate the willingness to pay for these models by potential clients.

It is anticipated that the information obtained from the results will inform decisions about a range of possible models of care and the uptake of these services.

METHOD

The identification of feasible intergenerational models (objective 1) was based on their practical implementation in the context of the Australian legislative framework, a review of existing interventions globally, a literature review of the existing models and extensive consultation with a panel of experts. The models identified in objective 1 informed the development of a survey tool to elicit the views of potential consumers of these services. The data collected from the survey was analysed to estimate the preferences and willingness to pay for the feasible models (objectives 2 and 3). The methodological process is detailed below.

Identifying feasible models of Intergenerational care

The Delphi technique is a widely used and accepted method for gathering information from experts with the purpose of arriving at a consensus (Dalkey and Helmer 1963). In this study the Delphi process assisted in the development of a range of intergenerational care models. It enabled exploration of the underlying attributes of these models and identified the most suitable and feasible models for the Australian context.

Subject selection – Expert panel

To select the most qualified individuals for the expert panel, the selection was based on the recommendations provided by Delbecq, Van de Ven, and Gustafson (1975). Criteria for inclusion as members of the panel of experts included those holding a position in Australia as either: regulators, management decision makers who will utilize the outcomes of the study; professional staff members and clinicians together with their support team who are highly trained and competent within the

specialized area of care; researchers with significant experience and expertise in the care sector; and clients or potential clients of formal care. The list of expert panel members was developed by chief investigators and team members through a nomination process (Jones and Twiss 1978). Consumer groups, managers and other staff members from child care, aged care and dementia sectors and researchers were selected for inclusion. The panel consisted of a total of 23 Delphi panel experts – including aged care practitioners (48%), child care practitioners (22%), academic experts (researchers) (22%) and consumers (9%).

Panel participants were expected to be capable of contributing helpful inputs, and willing to revise their initial or previous judgments for the purpose of reaching or attaining consensus (Pill 1971) (Hsu and Sandford 2007).

Delphi Process

The Delphi process consisted of three iterations. Using group communication, this process achieved a convergence of opinion on a number of feasible intergenerational care models. During the first iteration the Delphi subjects were provided with pre-reading material prior to the panel discussion. This material, identified from the literature review, consisted of literature relating to various Intergenerational models. The readings were confined to material relating to formal care services delivered in a community setting, i.e. outside age care homes, delivered as a day care service, and provided interaction between older people and children in a shared setting. We defined "care" as that which is given by non-family members. In this sense, care was determined to be similar to "respite" where the primary, familial career engages the services of a third party to supplement care of the younger or older people.

The literature review identified four model types for consideration: visitations; co-located (visitations or, shared space), and single site. *Visitation* models describe intergenerational care across two separate institutions of care with the younger generation typically leaving their place of care to

visit with the elder generation (Hamilton et al. 1999; Murphy 1984; Skropeta et al. 2014). *Co-located* models offer intergenerational care in situations where both the younger and elder generations' primary place of care giving was located either under the same roof, or on the same grounds. Co-located models where further classified into *visitations* and *shared space*. *Co-located Visitations* describe care centres that do not include specific areas created for inter-generational interaction. As such, one generation visits the other in their place of care, typically by walking down the corridor, or across the driveway. (Murphy 1984) (Jarrott and Bruno 2007; Larson 2000). *Co-located, shared space* models specifically described intergenerational space as part of their facilities (Gigliotti et al. 2006; Laabs 1993). The inclusion of "*single site*" model as a descriptive code emerged in response to Chamberlain, Fetterman, and Maher (1994) description of the *Glenwood*. This was the only single site model identified in the review, and demonstrates how intergenerational care may be delivered in a single home.

Investigators used open-ended questions to solicit panellists' opinions on the attributes of hypothetical and existing models. In determining intergenerational care model attributes, panellists were instructed to take two perspectives into account. First, the attributes needed to be relevant to the policy making process, and therefore consistent with policy instruments and outcomes considered plausible by the State and Federal regulations. Second, the attributes must have meaning to consumers of care. The legislative boundaries of the models were based on a recent paper by Radford et al (Radford et al. 2015) that reviewed the supports, enablers and constraints in the legislation in the development of Intergenerational models in Australia.

In the second iteration the views of members were presented to the larger group without significant discussion. The clarification process involved group discussion about the nature of the models, the overlap among models and definitions that needed to be refined. Following consultation with panellists, hypothetical models were constructed based on their feasibility in terms of practical

implementation in the context of the Australian legislative framework. Once all the potential models were exhausted and clarified these were forwarded to panel members for further consideration.

During the third iteration the models were described in more detail and subjected to a group discussion about how influential and feasible implementation of these models might be. The discussion was focused on practicalities and client needs. Votes were totalled to identify the models considered most feasible to the panellists. The Delphi process narrowed the number of potential models from seven to two. The process led to the identification of the shared campus and visiting campus as feasible models in the Australian setting. The two feasible models identified in this process are referred to as InGen. These InGen models differentiate from the general intergenerational models because of their specific characteristics identified during the Delphi process.

Survey Tool to identify preferences for Intergenerational models

Survey Design

The survey tool was developed from information acquired from a systematic literature review (from published peer reviewed articles, industry reports and conferences papers), qualitative research and feedback from numerous focus groups, including experts from the Delphi process. The pilot studies, combined with follow-up qualitative interviews with respondents, led to a fully tested survey.

Economists use a variety of techniques to value nonmarket amenities consistent with the valuation of marketed goods. These techniques are based upon either observed behaviour toward some marketed good with a connection to the non-marketed good of interest or stated preferences in surveys with respect to the nonmarket good (Freeman 1993). Existing data relating to the proposed InGen models is not available because they are new and not provided in the market context. Consequently, the contingent valuation approach was used in the survey to estimate demand

(Boardman et al. 2011; Carson 2000). It is called "contingent" valuation, because people are asked to state their willingness to pay, contingent on a specific hypothetical scenario and description of the service.

The survey questions were structured to ask respondents the value that they would assign to each InGen model. The Willingness to Pay elicitation was piloted in a survey of 10 participants using a double dichotomous choice method. This 'bid' approach where respondents are given a single value that they must either take or leave (Smith 2000) and the follow up bids, either higher or lower depending on the initial response (Boardman et al. 20011) was dismissed after the initial survey pilot revealed many non-responses and difficulty among respondents in completing the survey. Also the pilot study highlighted the difficulty in the 'bid' approach because many respondents received either full or part subsidy for their care services. Consequently, this item was replaced with a series of questions. Respondents were asked to rank models - the two hypothetical InGen models and traditional separate child/aged care models - assuming the same cost of care. Of those respondents willing to use InGen models if costing the SAME price as their current care, we asked "*what is the maximum EXTRA amount per day that you would be willing to pay for Intergenerational care?"* A value of '0' indicated that they would not pay extra for these models.

In regards to the list of attributes aligned to each model, unless specified all other attributes of the InGen models remained the same as the status quo. Thus, they mirrored the attributes of traditional separate child care and aged care models (e.g. opening hours). This enabled familiarity with the models with the aim of further reducing hypothetical bias.

Target Group

Expert panellists from the Delphi process were asked to distribute the surveys to their clients/staff and other interested parties. To reduce hypothetical bias, the main target group were those currently using care e.g. adult recipients of care, family care givers and parents of pre-school children. For practical reasons, the survey was offered to anyone over the age of 18 interested in completing the

survey. Promotional activities including the placement of the survey link on agency websites increased the response rate. The completed questionnaires reflected the perspectives of four respondent categories: 1. adult care recipients; 2. Parents/ primary caregivers of children; 3. primary caregivers of adults; and 4. others (non-carers).

Survey mode

Surveys were administered using three different modes – face to face (1%), mail (4%) and on-line (95%). Snowball sampling approach was used to recruit survey respondents contacted by various experts in the field. Location of face to face interviews was influenced by the relative ease of access to potential survey respondents. The mailed survey was administered to agencies operating in Queensland and NSW who agreed to distribute the surveys to their clients and staff. Surveys were also developed and uploaded on-line on various national sites supported by stakeholders using the Qualtrics software. Using various modes (i.e. face to face survey; on-line survey; paper based survey), individuals were approached to complete the survey. Although the population is unknown, 1445 surveys were received and 809 cases with full data available for analysis.

Statistical analysis

Descriptive statistics were generated for the sociodemographic variables by carer type (parent, carer of adults, care recipient and other). Variable differences among carer types were assessed with a Pearson's chi-square test.

Regression modelling was used to test the association between the use of InGen services and key socioeconomic characteristics that reflect predisposing (i.e. age, gender, marital), enabling (urbanicity, income, education) and need (care group) characteristics. The choice of model was based on previous research (Andersen and Newman 1973; Vecchio et al. 2016). The Anderson model used

in the health care service literature explained service usage, particularly in relation to respite use (see review by Phillipson, Jones, and Magee (2014)) and Vecchio et al. (2016). Based on previous studies (Jones et al. 2007; Vecchio et al. 2016) and the Andersen 'Behavioural Model of Service Use' (Andersen and Newman 1973), we tested the association between the potential use of InGen services and various socio-demographic variables.

The dependent variables and explanatory variables are presented in Table 1. Using binary regression analysis, estimates were obtained regarding the effect of socio economic characteristics on the probability of using InGen services. The dependent variable, InGen Use, represented those in the selected sample who reported that they would use InGen services if offered on the market and those who would not use this type of service.

Two separate OLS regressions were also performed to estimate the willingness to pay for the shared campus and the visiting campus regressed against key socio-economic and demographic variables as defined in Table 1. The model includes age, age squared, and the squared value of the i^{th} person's age. This reflects the quadratic relationship between age and respite use. Income was log transformed for the analysis. To adjust for non-normality in the dependent variables, WTPShared and WTPVisit were log-transformed. Analyses of data collected from the survey tool were conducted using Stata version 13.1 (StatCorp, Texas City, TX, USA).

Ethics

Ethics approval for this research was obtained through the Griffith University Human Research Ethics Committee (GUHREC Approval Number AFE/21/13/HREC). Written consent to participate in the Delphi process was obtained from all members of the panel. In regard to the survey tool, we explicitly stated in the introduction that the completion of the survey was an indication of informed consent.

Results

InGen Models

A consensus was reached among experts, via the Delphi process, to establish models of care appropriate within the Australian regulatory setting. The proposed two InGen models are within a community setting to benefit older people with cognitive decline (and carers) and younger children (3-5 years) in day care settings. Previous studies (Cummings et al. 2002; Femia et al. 2008; Generations United 2013; Heyman et al. 2011; Jarrott and Bruno 2007; Whitten et al. 2016) imply that both models provide opportunities for younger and older people to engage within their communities, prevent older people prematurely entering residential care facilities, improved social capital, confidence, resilience, motor and cognitive skills. The remaining characteristics of current care services would remain the same, with the exception of an InGen program that is included in the usual day care program. The expert panelists also recommended that the InGen program run for around one to two hours per day. They believed this gave adequate time for participants to obtain the therapeutic benefits of the program and also avoided any burnout among participants and staff.

The first model is a *dual campus model*, where aged care and child care day care centres are housed on the same properties with shared activities for 1-2 hours per day. The campus would share facilities such as the front desk, administration and general staff, kitchen and laundry and car park, by providing services at the same location. The second model is a *visiting campus model*, where the centres are located separately and people are transported to a multi-function room for joint activities for 1-2 hours per day, twice per week. During this time both children and older adults are supervised in a common activity space. All participants are carefully screened to ensure their suitability for the program. Participation is voluntary and participants can withdraw at any time before or during the session.

Survey

Table 1 presents the composition of the study sample. The results are stratified into four care groups: parents of young children, carer of an adult, care recipient, and other (i.e. those not belonging to any of the other categories). The majority of respondents were female, married, have a mean income of $74,600 and a mean age of 50 years, reside in the city and possess higher levels of education. Of the total sample, 69% of survey respondents reported that they would consider using InGen services.

Comparisons were made among the carer groups for each of the explanatory variables shown in Table 1. The chi square in the table indicates some significant differences among the four groups. A greater proportion of parents (69%) use formal care compared with carers of adults (21%). Similarly, a greater proportion of parents (83%) would consider using InGen services compared to the other groups.

The mean value of the willingness to pay above current services (with 95% confidence intervals) was also calculated for each group. Of all respondents considering using InGen services, their willingness to pay for the shared campus and visiting models was a mean rate of $8.29 and $7.85 extra per day, respectively, above their out of pocket expenses. Interestingly, carers of adults were willing to pay a greater extra amount per day (extra per day - shared model is $12.78 and visiting model is $9.62) for the InGen models compared with other care groups.

INSERT TABLE 1 HERE

Further analysis of the data, presented in Table 2, show the use of InGen Care services by potential consumers if offered by agencies. All explanatory variables indicate a significant difference

between those that would uptake InGen Care services and those that would not, with the exception of family members caring for adults, non-carers (i.e. 'other' category), those residing in regional areas and those who possess a certificate diploma. A higher proportion of parents of young children, females, those who are married, receive a higher income, younger age, reside in a city and possess a higher level of education report the potential use of InGen Care.

INSERT TABLE 2 HERE

Table 3 identifies the proportions of respondents who ranked each model of care as their first preference. Within each care group category the shared campus model was preferred by the majority of respondents. The visiting campus model was ranked as first preference by a smaller proportion of respondents followed by a lesser proportion for the separate model[2]. A difference in preference pattern, however, is seen in the care recipient category. Compared to the visiting campus model (10.7%), a greater proportion of care recipients ranked the separate model (28.6%) as their first choice.

INSERT TABLE 3 HERE

Regression

Characteristics associated with the use of InGen services

The estimated odds ratios for the binary logistic regression are presented in Table 4. For the total sample, parents of young children are more likely to choose an InGen service compared to non-

[2] Separate model refers to either the separate child care or adult respite care centre. This model was not evaluated.

carers (i.e. 'other' category). That is, for a parent, the odds of using InGen are 1.957 larger than for a non-carer. Increasing education is associated with greater odds of using InGen.

INSERT TABLE 4 HERE

Characteristics associated with increased Willingness to Pay for InGen

The results presented in Table 5, show the estimated coefficients of the two linear regressions for the association between willingness to pay for InGen and socio-economic variables. Referring to the shared campus model, carers of adults were associated with a higher willingness to pay for InGen Care services compared to non-carers. That is, willingness to pay was 126% higher (exp (0.772) = 2.164) for carers of adults than non-carers. Males and those residing in the city were also associated with a 37% (exp(0.317) = 1.373) and 60% (exp(0.471) = 1.602), respectively, higher willingness to pay compared to their counterparts. Similar results were reported for the visiting campus model.

INSERT TABLE 5 HERE

A demand schedule for InGen was also performed to investigate the association between number of days per week and the willingness to pay for this care. The correlation coefficients and the regressions however revealed no statistical association between the two variables. The small sample size and respondents seeking care based on need rather than want may have influenced this result.

Discussion

In recent years, government policy and service providers have moved towards consumer-centric models for care that is in line with national and international best practice (ACT Government 2011).

For example, the recently introduced National Disability Insurance Scheme (NDIS) allows consumers to choose their service. Consequently, we can expect a call from consumers for a wider variety and range of services to be provided. This consumer centric approach is encapsulated in the InGen models by providing greater choices of care models to suit consumer needs.

Family caregivers play a vital role in supporting older individuals to reside in the community and delay entering residential aged care facilities (Gaugler et al. 2000). Care at home offers people with long-term care needs a higher quality of life and better outcomes at lower cost than care in a nursing home (Konetzka 2014). The use of respite services by caregivers has been shown to extend the length of time older people can remain living in the community with family support (Phillipson et al. 2013a). Models of care that strengthen relationships within the community may better suit the needs of these families.

The objectives presented in this paper were to identify feasible models of intergenerational care in the Australian setting and to estimate the preferences for, and the willingness to pay, for these models by potential clients. Experts in the care sector identified the shared campus model and the visiting campus model as feasible in the Australian regulatory setting. The key attributes of InGen included respite day care, community engagement, formalised and tested common educational pedagogy across generations, and evaluation of participant outcomes. This differs from the majority of intergenerational care programs, which typically operate in residential aged care facilities and lack a formalised program or curriculum.

A fundamental aspect of the proposed InGen models is the meshing of child care and aged care standards that embed continued educational development component into aged care programs for people with early cognitive impairment. This educational component may be added to the traditional respite model of care that is typically offered in community centres. Similar to current child care programs that are responsive to the changing developmental needs of the child, respite models for older people with can be based on strong developmental learning and education programs intended to

accelerate learning and slow the cognitive degeneration. Such programs provide opportunities for transparent and open dialogue among care workers, older people and their families. The frequent monitoring of the recipient of care allows consumers to reassess and evaluate the suitability of the respite program for the individual. This model provides consumers with strong links to support staff and encourages early intervention. Research highlights the need for an early intervention and prevention focus which aims to support the caring relationship (Dawson et al. 2017), prevent its breakdown (Ageing Disability and Home Care 2011) and minimises the escalation of problems (Luker 2006).

A survey tool was used to ascertain the uptake of these two hypothetical models by potential clients. The results from the analysis showed that for the same cost of current services, parents reported a greater likelihood of using InGen services. Parents may feel that these care models have a greater positive influence on their children than the perception of the benefit for older generations. In addition, adult carers reported on average a higher willingness to pay for InGen services than others. The two findings imply that parents of young children are more price sensitive when it comes to using care services. Thus, while parents as a group may value the good, they are not willing to pay as much for it. However, the result indicated that carers of adults were willing to pay more than others for these services. This finding is not surprising given the lack of suitability in regards to formal care services reported by carers of adults (Phillipson et al. 2013b).

Not only have the shared campus and the visiting campus models been deemed feasible in the Australian context but the results indicate potential consumers value a greater choice of services which may better meet the needs of families. For the participating organisations, these models are anticipated to be cost effective since they take advantage of economies of scale and scope by allowing opportunities to improve utilisation of resources such as skilled labour, learning materials, and buildings. For consumers, the models may increase the quality of life of participants and encourage the creation of age-friendly communities in Australia. For participants, InGen programs

may: improve motor and cognitive skills; social inclusion; delay entry into nursing homes; improve academic performance of at risk children; and increase social engagement, confidence and resilience in participants (Cummings et al. 2002; DeVore et al. 2016; Femia et al. 2008; Whitten et al. 2016). The anticipated benefits are therefore substantial.

There are, of course, potential clients who are less interested in using InGen, instead preferring the traditional models of care (i.e. separate child care and aged care). For care agencies, the advantage of the proposed InGen models are their adaptability to agency resources and consumer needs. The voluntary nature of participation into the InGen program and the mixing of care of older people and children for a maximum of one to two hours per day provides greater flexibility for agencies. For instance, care agencies may continue to offer the traditional separate models while simultaneously running InGen for a certain part of the day.

Challenges to implementing InGen models in Australia are expected. One major challenge is the creation of a meaningful curriculum for intergenerational learning and the development of an age appropriate pedagogy. Such a curriculum will require experts from early childhood and adult education to develop curriculum for an InGen model. A further challenge is that no model of care combines health policy and education policy. The implementation of the proposed model addresses this challenge by meshing child care (which falls under education portfolio) and aged care (which falls under health portfolio) standards that embed continued educational development component into aged care programs for people with early cognitive impairment. Another challenge is the development and implementation of suitable indicators to measure outcomes. Research in Health Economics provides a range of useful measures that can capture the effectiveness of InGen programs such as quality of life measures. An economic evaluation that compares outcome indicators of InGen programs with current models of care can be used to assess the effectiveness of the program to the individual and the community. There is also likely to be workforce challenges in terms of skills and expertise. There is a need to develop education and training programs for the advancement of

workers' careers into intergenerational care worker. At present, the current training programs for employees are vastly different, however both workforces face talent shortages and this program could be one way to provide appropriate career retention strategies in the future to address these shortages. A combined qualification can be offered as one way to address this challenge. Consideration of intergenerational qualifications can be found in Europe and the United States (College of Agricultural Sciences 2017; Extension Campus 2017).

The recruitment and retention of clients will also be problematic. It may take some time for a shift in culture to take place, where InGen is accepted as an option. This challenge is partly addressed in this study via the exploration of consumer preferences and the willingness to pay for InGen. Further research is needed to address this and the other challenges faced by agencies, consumers and policy makers.

Limitations

Due to data limitations, our study was unable to capture information relating to the care recipient's diagnostic category or the stage of the condition. Higher need individuals are expected to be either residing in residential aged care facilities or use specialist dementia care. It would be beneficial to expand the models to include psychosocial factors such as attitudes, knowledge, and social norms (Bradley et al. 2002). We expect, however, that the predisposing factors of the model (gender, age, and relationship) capture to some extent these types of influences. Snowball sampling approach was used to recruit survey respondents. Snowball samples are subject to bias. It is also noted that government subsidies paid to carers may distort demand estimates and confound results.

Of the 1445 surveys collected, 54 respondents did not indicate their carer status and therefore were immediately excluded from the analysis. Of the remaining 1391 surveys, 809 contained full data. Analysis indicated that the majority of the missing data (81 per cent) came from the 'Other' category (i.e. neither carer, parent, nor care recipient). Further inspection of this category showed

similar demographics between the missing and non-missing groups. The substantial proportion of missing data is a limitation of the study. However, since carer, parent and care recipient survey respondents were experiencing care at the time of the survey, they may have been better placed than the 'Other' (i.e. non-carer) category to provide preferences and willingness to pay for care models. Thus, the missing data of the 'Other' category may not be problematic.

The contingent evaluation approach of asking people directly, in a survey, how much they would be willing to pay out of pocket for hypothetical services is problematic (Boardman et al. 2011). The valuation is based on what people say they would do, rather than what people are observed to do. However, contingent valuation is one of the few ways to assign dollar values to services that do not involve market purchases. Information bias may arise whenever respondents are forced to value attributes with which they have little or no experience. This bias was minimised by clearly stating the attributes of the models and embedding the model characteristics with that of current services on the market. Answers may also be biased because the respondent might express their feelings about the InGen Care service itself. Strategic bias may also arise when respondents fail to take these questions seriously because they are not required to pay the stated amount. For instance, responses may be unrealistically high or low so as to influence the resulting supply of the service. For this reason, we recommend greater attention should be given to the direction and association between InGen services and the explanatory variables rather than the actual estimated coefficients. As discussed below this has implications for future research.

Conclusions

The proposed InGen program is different from existing intergenerational programs in Australia, as it involves formal day respite care across generations, includes a formalized and tested common educational pedagogy across generations, promotes community engagement, and an early monitoring, screening and evaluation of participants. The monitoring of children's development is

well established, but to date there is limited community based monitoring of the development for older people. This intervention for older people encourages ongoing social engagement, independence and builds respite capacity for their carers to assist with Australia's growing care challenge.

The results of the study show that there is demand for the shared campus and the visiting campus models among the Australian community, having established expert views on the feasibility of these models. How much individuals will actually pay is uncertain given the limitations of the valuation approach, although the current findings suggest carers are willing to pay more for this care than their current service. This is also consistent with survey findings, which show greater levels of dissatisfaction of respite services among carers of adults compared to the parent group.

Having identified feasible models of InGen in the Australian context, and estimated consumer preferences and willing to pay for this care, it is recommended that the preferred models of InGen are trialled, participants monitored and the outcomes of the programs measured and evaluated to identify the resulting costs and benefits. This is expected to reveal actual consumer preferences, actual willingness to pay and outcomes for the purpose of continuous quality improvement through the refinement of the InGen models.

The models can be easily implemented into existing care centres or agencies by opting for either a refinement of existing infrastructure or the construction of purpose built facilities. The program ultimately aims to create age-friendly communities in Australia and introduce sustainable intergenerational care as a formal social program. Future research will involve the development of policy and operational guidelines that could be used in the planning and delivery of the InGen models in the Australian community setting.

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Table 1. Descriptive statistics by care type

	Parent (n=161)	Carer of adults (n=119)	Care Recipient (n=58)	Other (n=471)	Total (n=809)	Difference Chi^2 test
	%/mean	%/mean	%/mean	%/mean	%/mean	
Consider using InGen	83.23	63.87	55.17	66.45	68.60	23.099***
Male	29.19	28.57	44.83	37.15	34.86	7.980**
Married	86.34	68.07	51.72	64.76	68.60	34.427***
Household Income	$ 95,646	$ 62,454	$ 41,276	$ 74,582	$74, 602	122.926***
Age	36	53	62	52	50	534.532***
City	66.25	57.14	60.34	64.97	63.74	3.274
Regional	27.50	33.61	31.03	25.48	27.48	3.562
Rural	6.25	9.24	8.62	9.55	8.79	1.664
Year 12 & below education	18.63	32.77	34.48	29.72	28.31	10.149**
Certificate/Diploma	34.78	26.05	34.48	33.12	32.51	2.825
Bachelor/Post graduate	46.58	41.18	31.03	37.15	39.18	6.227*
Currently uses formal care	68.94	21.01	13.79	0	42.60	88.065 ***
	(n=122)	(n=68)	(n=30)	(n=271)	(n-491)	
WTP for shared model	$ 9.15	$ 12.78	$ 9.20	$ 6.68	$ 8.29	106.4914***
	(n=123)	(n=69)	(n=29)	(n=269)	(n=490)	
WTP for visiting model	$ 9.24	$ 9.62	$ 6.69	$ 6.88	$ 7.85	83.2246

Legend: * p<.1; ** p<.05; *** p<.01

Table 2. Descriptive statistics of respondents who would use/not use Intergenerational Care

Variable	Use (n=555)	Not Use (n=254)	Difference Chi^2 test
	%/mean	%/mean	
Parent	24.14	10.63	19.964***
Carer of Adult	13.69	16.93	1.454
Care Recipient	5.77	10.24	5.233**
Other	56.40	62.20	2.4168
Male	32.79	39.37	3.320*
Married	71.71	61.81	7.930***
Household Income	$ 80494	$ 61728	39.099 ***
Age	48	53	107.0271***
City	66.61	57.48	6.276***
Regional	25.99	30.71	1.944
Rural	7.40	11.81	4.226**
Year 12 & below	23.42	38.98	20.770***
Certificate/Diploma	31.35	35.04	1.080
Bachelor/Post grad	45.23	25.98	27.071***

Legend: * p<.1; ** p<.05; *** p<.01

Table 3. First preference ranking of models by care type

First preference	Parent % (n=81)	Carer of adults % (n=53)	Care Recipient % (n=28)	Other % (n=185)	Total % (n=347)	Difference Chi^2 test
Shared model	51.9	52.8	46.4	53	52.2	0.430
Visiting model	21	26.4	10.7	26.5	23.9	3.917
Separate model	17.3	11.3	28.6	11.9	14.4	6.457*
None of the above	9.9	9.4	14.3	8.6	9.5	0.915

Legend: * p<.1; ** p<.05; *** p<.01

Table 4. Characteristics associated with the use of Intergenerational Care, odds ratio

	Odds Ratio	[95% Conf. Interval]	
Parent[a]	1.9566***	1.180	3.242
Carer of Adult[a]	0.877	0.566	1.360
Care Recipient[a]	0.802	0.442	1.455
Age	1.021	0.966	1.080
Age Squared	1.000	0.999	1.000
Male	0.793	0.571	1.101
IncomeLog	1.233	0.938	1.620
Married	1.252	0.885	1.771
City[b]	1.548	0.912	2.629
Regional[b]	1.392	0.789	2.455
Year 12 & below[c]	0.430***	0.284	0.650
Certificate/Diploma[c]	0.582***	0.391	0.867
_cons	0.138	0.005	3.720

Source: Derived from Household Survey, 2016

[a] Referent is Other

[b] Referent is Rural

[c] Referent is Bachelor/Post graduate

Legend: * p<.1; ** p<.05; *** p<.01

Table 5. Characteristics associated with increased willingness to pay

Variable	WTP Shared model	WTP Visiting model
Parent[a]	0.041	-0.03
Carer of Adult[a]	0.772***	0.542***
Care Recipient[a]	0.299	0.183
Age	-0.036	-0.013
Age Squared	0	0
Male	0.316**	0.209
Income (Log)	-0.006	0.027
Married	0.206	0.071
City[b]	0.471*	0.492*
Regional[b]	0.231	0.316
Year 12 & below[c]	-0.138	-0.215
Certificate/Diploma[c]	-0.074	-0.004
_cons	1.567	0.824
ll	-855.562	-844.764
N	490	489

Source: Derived from Household Survey, 2016

[a] Referent is Other

[b] Referent is Rural

[c] Referent is Bachelor/Post graduate

Legend: * p<.1; ** p<.05; *** p<.01