A preliminary study: Does relationship closeness with grandchildren correlate with the quality of life and physical health of Malaysian Chinese elderly?

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Abstract

This preliminary mixed-method study aimed to investigate whether grandparental childcare can contribute to elderly' quality of life and physical health. In the quantitative study, a total of 97 Chinese grandparents who are primary caregivers were recruited to examine the relations of relationship closeness, quality of life and physical health. Correlational analysis revealed that grandparent-grandchildren relationship closeness positively correlated with self-rated quality of life and physical health of the grandparents. In the qualitative interview, grandmothers (n = four Chinese grandmothers) who are primary caregivers were recruited to share their experience in taking care of grandchildren. Findings from the thematic analysis revealed that all grandmothers have a close relationship with their grandchildren. In specific, they are happy with the companionship of grandchildren even though they may feel physically tired in taking care of grandchildren. This preliminary study on skipped generation family provides insights into understanding the contribution of relationship closeness with grandchildren on the perceived quality of life and physical health of Malaysian grandparents who are the primary caregiver to their grandchildren.

Keywords: grandparent, grandchildren, relationship closeness, quality of life, physical health

Introduction

The rate of growth in the older population in Malaysia has increased over the years. According to the report from the Department of Statistics Malaysia (2020), the percentage of the population aged 60 years and above increased from 10.3 per cent (3.4 million) in the year 2019 to 10.7 per cent (3.5 million) in the year 2020. Due to the advancement of medicine, the elderly

can retire in good health condition and also longer life expectancy. Therefore, the average life expectancy for Malaysian men is 79.9 years old while Malaysian females are expected to live to 81.9 years (Department of Statistic Malaysia, 2016). As Malaysian's life expectancy is longer, it is believed that these elderlies have more chances to help their adult children to raise young kids. Erik Erikson's psychosocial development theory stated that the individual will experience "Generativity versus Stagnation" during middle adulthood (ages 40 to 65 years old). To develop generativity, the individual will assist the younger generation and contribute to society to gain a sense of usefulness and accomplishment. Thus, it is believed that the grandparenting role is important for elderly who are experiencing an empty nest. The companionship and close relationship with grandchildren may contribute to a better quality of life in aspects of mental and physical health. A study by Mehta and Thang (2012) revealed that the grandparents enjoyed the companionship of grandchildren and a house without the presence of grandchildren will be a dull place.

In Malaysia, a traditionally collectivistic society, the elderly plays a vital role in taking care of grandchildren when their adult children requested their help. Rahimah (2007) found that grandparents in Malaysia were generally providing daycare for grandchildren, even though they were not legal custodians of the children. Due to collectivism and Confucianism belief, Chinese grandparents who emphasize family values and intergenerational solidarity are more likely to provide childcare assistance to their adult children. As compared with other ethnicities, it found that Chinese grandparents are more likely to commit to grandchildren's education-related issue (Yusuf, 2014). It is believed that child-rearing goal in Chinese families such as the importance of education and family reputations. In addition to the traditional family goal, the Malaysian Chinese are reported with the longest life expectancy (men: 75years; women: 80.2years) as

compared with other ethnic groups (men and women of Malay and Bumiputra: 71.4years, 76.2 years; men and women of Indian: 67.8 years, 76.3 years). The percentage of elderly in the Chinese population is the highest (16.1%) as compared with other ethnicity groups (Malay and Bumiputra: 9.2%; Indian: 11.7%). Entrusting childcare responsibilities to the grandparents seems to be the most preferred choice of many parents for both practical and sentimental reasons. Traditional Chinese society promotes the values of collectivism and intergenerational bonding, and Confucianism highlights the importance of respect towards the elderly and appreciates their wisdom.

This study focused on grandparents from the skipped-generation household. Over the decades, previous studies (Burnette et al., 2013; Pebley & Rudkin, 1999) had been highlighted the concept of the skipped-generation household where parents are not present for most of the time. Grandparental childcare load is higher in skipped-generation households (Chen et al., 2011). The findings suggest that the grandparental role and influence in a skipped-generation household are expected to be more significant than in a household with parents present. In the absence of parenting practices, it is a widely held view that grandparenting may be the domain of child-rearing practices. As a result, grandparenting and grandparents' involvement will be an important element to discuss when we are addressing the issue of child development.

Having a grandchild can improve the life meaning of the elderly (Tanskanen, 2017). A study by Mahne and Huxhod (2015) revealed that a closer grandparent-grandchildren relationship can lead to a higher level of grandparents' positive subjective well-being. While, in a 9-year longitudinal study on caregiving grandmothers and grandchildren from skipped generation families, Goodman (2012) found that a close grandmother-grandchildren relationship contributed to a better life evaluation in future. A study by Burn and colleagues (2014) on

Australian women aged 57-68 revealed that the grandparenting role could improve quality of life, keep grandmothers mentally sharp and reduce the risk of developing cognitive diseases such as Alzheimer's disease.

Long-term caregiving experiences were related to the improvement of self-rated health (Ku et al., 2013). A study on Chinese grandparents also found that any caregiving experience (previous or repeated) is beneficial to grandparents as it can promote their physical health as well as well-being (Zhou et al., 2017). In the Chinese cultural context, grandparents who uphold the Confucian belief may view their caregiving role and tasks as their contribution to the family. Thus, caregiving experiences lead to better mental and physical health with a better sense of self-evaluation and receiving caring from grandchildren. A past study also found that a close relationship between grandmother and grandchild was related to better health in skipped generation families whereas the conflict between grandmother and grandchild was also related to poorer self-rated health of grandmothers (Goodman et al., 2008).

As reviewed above, this study aimed to study the relations among grandparent-grandchildren relationship closeness, quality of life and physical health of grandparents in the skipped-generation family. The quantitative data will be further explored by an interview.

Research objective 1: To examine the relations between grandparent-grandchildren relationship closeness and quality of life among grandparents in the skipped-generation family

Research objective 2: To examine the relations between grandparent-grandchildren relationship closeness and self-rated physical health among grandparents in the skipped-generation family

Research objective 3: To explore the relationship closeness between grandparent and grandchildren and its linkage with quality of life and physical health among grandparents in the skipped-generation family

Methodology

Research design, sampling technique and procedures

This study applied a sequential explanatory research design. The characteristics of sequential explanatory research design are to collect quantitative data first followed by collecting qualitative data as the researchers would like to expand the quantitative data with some in-depth qualitative data. Data of this study was collected via interviewer-administered survey method and interview via purposive sampling method. There are a few selection criteria set by researchers to recruit a qualified sample. The respondents were recruited from rural area in Malaysia. The recruited grandparents are the main caregivers and have at least one grandchild in the age of 7 to 12. Rural area was chosen because there are a lot of parents are working in the urban area and keep their children with elderly parents.

As aforementioned, this study only focused on Chinese grandparents. With the assistance of the school authority, we first distributed invitation posters that briefly introduce the purpose of the research and invitation form to target students so that they can bring it to grandparents. In the invitation poster, the grandparents can view the details of our data collection such as date and time. The grandparents will come to school and participate in the interview survey question if they accept our invitation. However, home visits were arranged and conducted for some grandparents if they have difficulties attending the prescheduled interview survey in school. Before conducting interview-survey, researchers obtained the grandparents' consents. With the

help of researchers and enumerators, the respondents spent approximately one hour to one and half hour completing the questionnaires. A token of appreciation was provided to respondents once they completed the interview survey questionnaire.

In the interview stage, the open-ended interview question was prepared in mandarin and the interview was also conducted in mandarin. Before the interview session, the interviewer provided a briefing regarding the research procedures to the interviewees. The interviewees had been informed that the interview session will be recorded in audio format and is anonymous. The interview session started after the grandparents gave consent. The duration of the interview session varied from one hour to approximately one hour forty minutes. All four interview sessions were conducted in the school library to minimize the disturbance towards the interview session. The audio recording quality is assured. The interviewers tried to write down all of the information included facial expression and body gestures. A token of appreciation was provided to interviewees right after the end of interview session.

Participants

The quantitative interview survey study recruited a total of 97 grandparents. There are 64 grandmothers aged 53 to 84 years (mean = 64.47, SD = 7.13) while 33 of them are grandfathers aged 58 to 84 years (mean = 72.47, SD = 6.13). The age for entering grandparenthood of grandfathers is from 46 to 70 years old; while the age for entering grandparenthood of grandmothers is 39 to 65 years old. The mean age of the grandchildren is 9.63 (age range = 7 to 12 years old). The average duration of taking care of the grandchildren is 8.74 years (SD = 2.72). Regarding the marital status of the grandchild's parents, there are 68% (n = 66) are married; followed by divorced (n = 22, 22.7%), separated (n = 4, 4.1%), widowed (n = 3, 3.1%) and unmarried (n = 2, 2.1%).

In the qualitative part, there are four Chinese grandmothers recruited in the interview session. Their ages ranged between 57 to 63 years old while the age of the grandchildren ranged between 7 to 12 years old. Only one of the grandmothers was staying with her spouse (i.e., grandfather) because another three grandmothers are widows. Regarding the marital status of the grandchild's parents, three of them are a married couple and one is divorced. These four grandmothers take care of grandchildren once they were born. To keep anonymity, the interviewees will be named Grandma A, B, C and D in the following analysis.

Measures in the quantitative study

Relationship closeness. The 5-item Grandparent-grandchildren relationship quality was used to measure the level of relationship closeness among grandparents and grandchildren. The grandparents responded the items with 5-point Likert scale (1 = *Not at all, 2 = A little well, 3 = Somewhat well, 4 = Well, 5 = Very well*). The examples of the items are "How well do you get along with this grandchild?" and "How close do you feel the relationship is between you and this grandchild?". Higher average scores indicate the closer the relationship with grandchildren. This measure was found to have a reliable Cronbach alpha's value which is .70.

Quality of life. One self-rated item was used to measure the perceived quality of life among grandparents. The item is "Please rate your current quality of life" with 10-point Likert scale (1 = Poor; 10 = Excellent). The higher the scores indicate a higher level of perceived quality of life.

Physical health. One self-rated question was used to measure the perceived physical health of grandparents. The item is "Please rate your current health condition" with 10-point Likert scale (1 = Poor; 10 = Excellent). The higher the scores indicate a higher level of perceived physical health. In addition, this study also asked about the changes in health condition of grandparents

over the last year. The respondents rated the changes with 3-point scale (1= improved; 2 = no change; 3 = worse).

Measures in the qualitative interview

The interviewer asked some open-ended question related to their grandparenthood experiences and relationship with grandchildren. Next, grandmothers were asked to share any changes that happened in their life after taking care of grandchildren. Grandmothers can freely talk about the changes from different perspectives. Sometimes, the interviewers provided some probing questions to get in-depth data and get their feelings, thoughts and rationale on their quality of life and physical health.

Data analysis

The quantitative data were analyzed with SPSS version 22. Descriptive analysis was used to examine the levels of grandparent-grandchildren relationship closeness, perceived quality of life and self-rated physical health. Also, the frequency of health changes over the past year will be reported. Pearson correlation analysis was used to test the relations of grandparent-grandchildren relationship closeness, perceived quality of life and self-rated physical health. Before running the inferential analysis, data cleaning was done and it is normally distributed. It was found that the skewness and kurtosis values of the data were reported to be in the acceptable range.

Qualitative data were analyzed with thematic analysis. As this preliminary study only recruited four grandmothers in the interview, the data is encoded and analyzed with Microsoft excel to explore the grandparent-grandchildren relationship closeness, perceived life changes and quality of life as well as self-reported physical health.

Results and Discussion

Quantitative data

As shown in Table 1, the descriptive analysis was conducted to identify demographic information and the levels of study variables. Most of the respondents (n = 48, 49.5%) reported having a high level of grandparent-grandchildren relationship closeness; 29 of them (29.9%) reported to experience a moderate level of relationship closeness and there are 20 of them (20.6%) received low level of relationship closeness with their grandchildren. Even though 20 of them reported to have a low level of relationship closeness with grandchildren, however, the minimum score is 3.2. According to the scoring interpretation, 3 is rated as "somewhat well". Thus, it implied that all of them reported having a satisfactory level of relationship closeness with their grandchildren.

The descriptive analysis also showed the levels of perceived quality of life. The minimum score is 3 while maximum score is 10 (mean scores = 7.93; SD = 1.75). The results showed that the grandparents reported having a good quality of life averagely. Majority of the respondents (n = 60, 60.9%) reported to have a high level of quality of life; 29 of them (29.9%) perceived their quality of life as in moderate level, and only 8 of them (8.2%) experienced a low level of quality of life.

For the self-rated physical health, the minimum score is 2 whereas the maximum score is 10. The mean scores showed that the grandparents generally rate their physical health as acceptable and good. Most of the respondents (n = 56, 57.7%) achieved a high level of self-rated physical health; 35 of them (36.1%) reported to rate their physical health in a moderate level and only 6 of them (6.2%) rated their physical health below good and nearly poor. In addition, the

self-rated physical health changes over the past year also revealed that majority of the grandparents (n = 59, 60.8%) think there was no change toward their health condition; 9 of them (9.3%) think there was some improvement and 29 of them (29.9%) reported their health condition becomes worse. According to the ratio, 6 out of 10 grandparents think there is no change on their health condition as compared with past one year; 3 out of 10 think it becomes worse and 1 out of 10 believed their health condition improved as compared with one year ago.

<Insert Table 1>

The correlation analysis reported that grandparent-grandchildren relationship closeness was positively related to perceived quality of life ($r = .39$, $p < .001$) and self-rated physical health ($r = .31$, $p = .002$) among grandparents. The results revealed that the grandparents who received closer relationship with grandchildren tend to perceive their life quality higher and have better physical health. Also, the findings also revealed that there was a significant relation between perceived quality of life and physical health ($r = .64$, $p < .001$). A past study (Mhaka-Mutepfa, 2018) also found that physical health and quality of life are correlated.

<Insert Table 2>

Qualitative data

Grandparent-grandchildren relationship closeness

According to the results in thematic analysis, all grandmothers reported having a close and positive relationship with their grandchildren. The keywords are "good and close relationship", "love him/her (i.e., grandchildren)", and "I know they (i.e., grandchildren) love me too". Based on the keywords, relationship closeness between grandparents and grandchildren can

be described by love and close relationship". In addition, to describe the relationship closeness, grandmothers were asked to share the details of the close relationship.

As Grandma C explains,

Our relationship is very good. I love him so much. We have a close relationship. When I tell my grandson that I feel tired, he will ask me to take a rest. I will bring him to do the activities he likes. He will tell me, "Grandma, you're so nice to bring me out".

Also, Grandma B expresses,

…they (grandchildren) will massage for me when I feel not feeling well.

…they shared what had been happened in school with me.

…I always hug them. They tell me they love me and ask for my hugging.

Based on the response from Grandma B and C, close relationship involved affection, contact, sharing and mutual support between grandparents and grandchildren. While the parents work outside from home, grandparents and grandchildren often count on each other; they mutually support and seek warm relationship with each other. Grandparents and grandchildren also maintain a close relationship by expressing their affectionate in the form of emotional expression and instrumental support. Grandmothers shared their feelings with grandchildren while grandchildren will share the ups and downs with grandmothers too. Also, they spend their time with each other and doing daily activities together. Therefore, it noted that both grandparents and grandchildren are responsible in forming and maintaining close relationships by showing their care, affection, support, time, communication and involvement with each

other's daily life. Also, note that grandmothers from skipped generation families satisfied with their relationship with grandchildren.

Perceived of life changes, quality of life and self-reported physical health

According the results in thematic analysis, three grandmothers felt they are busier when taking care of grandchildren. Only one of them think there is no change on the life after taking care of grandchildren. Even though most of the grandmothers expressed that they felt busy and tired when taking care of grandchildren, however, they reported that they feel happy with the companionship of grandchildren. The feeling of happiness among grandmothers can be represented as good quality of life.

As Grandma A says,

> *After taking care of grandchildren, I have no time to shopping. I feel I am busier than*
> *before. I feel tired but I also feel happy and feeling gratified.*

Grandma C also expresses,

> *I am happy with their companionship as there is someone who can chit chat with me.*

As Grandma D articulates,

> *I am busier yet happier with grandchildren. I didn't feel any changes in health after taking*
> *care of grandchild. I can play with them.*

Social relationships and the quality of contact with grandchildren can determine quality of life of grandparents. Quality of life is commonly associated with happiness, meaningful relationships and physical health.

Conclusion

According to the descriptive results in the quantitative study, the majority of grandparents reported that they have a close relationship with grandchildren, a high level of quality of life and good physical health. The results of correlation analysis revealed that the grandparent-grandchildren relationship closeness was positively related to perceived quality of life as well as with better self-rated health.

The quantitative results were further explored with the interview. All four grandmothers viewed their relationship with grandchildren as close and good relationship. The quality relationship was contributed by their affection and care with each other. Regarding their view on life changes, quality of life and physical health, grandmothers feel happy with the companionship of grandchildren even they felt tired and busy sometimes. In an investigation into grandparenting and health, Goodman and colleagues (2008) found that conflict between grandmother and grandchild was related to poor health whereas a close relationship was associated with better health. According to the concept of benefit finding (Linley & Joseph, 2004), the individual will seek meaning from stressful events and promote positive growth in the aspect of a relationship. Previous studies (Brand et al., 2016; Mackay & Pakenham, 2011) also supported that perceived benefit finding and quality of life of caregiver was associated. Consistently, this study also found that grandparents are more likely to view their life and health positively when they gained benefit (i.e., emotion support, companionship, a quality relationship) from grandchildren even though they feel tired with the caregiving tasks sometimes.

From the cognitive perspective, evaluation of life quality refers to happiness, close to ideal, and satisfaction with life as a whole (Diener et al., 1985). In a family context, grandparents' evaluation of their quality of life may be impacted by their judgment on their contribution to the family and relationship quality with family members. Grandparents in

skipped generation family provided supports in the areas of academic, practical, informational, emotional and financial to grandchildren. Grandparents in skipped generation family are becoming surrogate parents to their grandchildren while the parents away from home. Good health may be very important for grandparents to give the commitment to childcare and child-rearing matters. The quantitative part of this study found that almost 60% of grandparents think there was no change in their physical health and approximately 10% of them viewed their physical health improved over the past year. The caregiving role may acknowledge their contribution to the family and develop a sense of fulfilment and of being a valued member within the family as well as society. Thus, grandparent caregivers are more likely to rate themselves to have a better quality of life and self-rated physical health.

Implications

This preliminary study on skipped generation family provides insights into understanding the contribution of relationship closeness with grandchildren on the perceived quality of life and physical health of Malaysian grandparents who are the primary caregiver to their grandchildren. The results revealed the importance of grandparent-grandchildren relationship closeness towards the quality of life and physical health of grandparents. Past study (Goodman et al., 2008) found that the conflict between grandparents and grandchildren lead to the poorer physical health of grandparents. Thus, the intergenerational program which can strengthen the bond between grandparents and grandchildren is vital to enhance the positive growth of elderly as well as to improve developmental outcomes of grandchildren.

Acknowledgments

References

Brand, C., & Barry, L., & Gallagher, S. (2016). Social support mediates the association between benefit finding and quality of life in caregivers. *Journal of health psychology, 21*(6), 1126-1136. https://doi.org/10.1177/1359105314547244

Burn, K., Henderson, V. W., Ames, D., Dennerstein, L., & Szoeke, C. (2014). Role of grandparenting in postmenopausal women's cognitive health: Results from the Women's healthy aging project. *The Journal of the North American Menopause Society, 10*(0), 1069-1074. doi: 10.1097/GME.0000000000000236

Burnette, D., Sun, J., & Sun, F. (2013). A comparative review of grandparent care of children in the US and China. *Ageing International, 38*(1), 43-57. doi: 10.1007/s12126-012-9174-z

Chen, F., Liu, G., & Mair, C. A. (2011). Intergenerational ties in context: Grandparents caring for grandchildren in China. *Journal of Social Forces, 90*(2), 571-594. doi: 10.1093/sf/sor012

Department of Statistic Malaysia. (2016). *Press Release: Abridged Life Tables, Malaysia, 2013 - 2016*. Retrieved from https://www.dosm.gov.my/v1/index.php?r=column/pdfPrev&id=TkpmM05EK3NBV0JR U1pmOUJnS3RCQT09

Department of Statistics Malaysia (2020). *Current Population Estimates, Malaysia, 2020*. Retrieved from https://www.dosm.gov.my/v1/index.php?r=column/cthemeByCat&cat=155&bul_id=OVBy Wjg5YkQ3MWFZRTN5bDJiaEVhZz09&menu_id=L0pheU43NWJwRWVSZklWdzQ4Tlh UUT09#:~:text=The%20percentage%20of%20population%20aged%2065%20years%20and

%20over%20(old,cent%20over%20the%20same%20period.&text=Out%20of%20the%2029

.7%20million,69.3%20per%20cent%20in%202019.

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life

scale. *Journal of Personality Assessment, 49*(1), 71-75.

https://doi.org/10.1207/s15327752jpa4901_13

Goodman, C. C. (2012). Caregiving grandmothers *and* their grandchildren*:* Well-being nine

years later. *Children and Youth Services Review, 34*(4), 648–654.

https://doi.org/10.1016/j.childyouth.2011.12.009

Goodman, C. C., Tan, P. P., Ernandes, P., & Silverstein, M. (2008). The health of grandmothers

raising grandchildren: Does the quality of family relationships matter? *Families, Systems, &*

Health, 26(4), 417–430. https://doi.org/10.1037/a0013963

Ku, L.-J. E., Stearns, S. C., Van Houtven, C. H., Lee, S.-Y. D., Dilworth-Anderson,

P., & Konrad, T. R. (2013). Impact of caring for grandchildren on the health of

grandparents in Taiwan. *Journals of Gerontology, 68,* 1009-1021. doi:10.1093/

geronb/gbt090

Linley, P. A., & Joseph, S. (2004). Positive change following trauma and adversity: A review.

Journal of Traumatic Stress, 17(1), 11–21. doi:10.1023/B:JOTS.0000014671.27856.7e.

Mackay, C., & Pakenham, K. I. (2011). Identification of stress and coping risk and protective

factors associated with changes in adjustment to caring for an adult with mental illness.

Journal of Clinical Psychology, 67(10), 1064-1079. doi:10.1002/jclp.20829

Mahne, K., & Huxhold, O. (2015). Grandparenthood and subjective well-being: Moderating effects of educational level. *The Journals of Gerontology*, *70*(5), 782-792. doi: 10.1093/geronb/gbu147

Mehta, K. K., Thang, L. L. (Eds.). (2012). *Experiencing grandparenthood: An Asian perspective.* Dordrecht, the Netherlands: Springer.

Mhaka-Mutepfa, M. (2018). Sociodemographic factors and health-related characteristics that influence the quality of life of grandparent caregivers in Zimbabwe. *Gerontology and Geriatric Medicine, 4,* 1-11. doi: 10.1177/2333721418756995

Pebley, A. R., & Rudkin, L. L. (1999). Grandparents caring for grandchildren: What do we know? *Journal of Family Issues, 20*(2), 218-242. https://doi.org/10.1177/019251399020002003

Rahimah, A. A. (2007). Grandparenting: Issues and challenges. *Akademika, 70,* 103-115. Retrieved from http://journalarticle.ukm.my/4302/

Tanskanen, A. O. (2017). Intergenerational relations before and after offspring arrive: A within-person investigation. *Social Science Research, 67,* 138-146. https://doi.org/10.1016/j.ssresearch.2017.08.001

Yusuf, M. (2014). Grandparents as educators: A study of socio-cultural and religion perspectives. *Procedia-Social and Behavioral Sciences*, *140*, 337-342. doi: 10.1016/j.sbspro.2014.04.431

Zhou, J., Mao, W., Lee, Y., & Chi, I. (2017). The impact of caring for grandchildren on grandparents' physical health outcomes: The role of intergenerational support. *Research on Aging*, *39*(5), 612-634. doi: 10.1177/0164027515623332.

Table 1

Descriptive analysis on the study variables (N = 97)

Variable	n	%	Minimum	Maximum	Mean (SD)
Grandparent-grandchildren relationship closeness			3.20	5.00	4.39 (0.51)
Low (3.20-3.80)	20	20.6			
Moderate (3.81-4.40)	29	29.9			
High (4.41-5.00)	48	49.5			
Perceived quality of life			3	10	7.93 (1.75)
Low (3.00-5.33)	8	8.2			
Moderate (5.34-7.66)	29	29.9			
High (7.67-10)	60	61.9			
Self-rated physical health			2	10	7.63 (1.92)
Low (2.00-4.67)	6	6.2			
Moderate (4.68-7.35)	35	36.1			
High (7.36-10)	56	57.7			
Self-rated physical health changes over the past year					
Improved	9	9.3			
No change	59	60.8			
Worse	29	29.9			

Note. SD = Standard deviation

Table 2

Correlation analysis among the study variables (N = 97)

Variable	1	2	3
1.Grandparent-grandchildren relationship closeness	-	-	-
2.Perceived quality of life	.39***	-	-
3.Physical health	.31**	.64***	-

*Note. *p <.05, **p <.01, ***p < .001*