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## Online Social Support and Psychological Well-Being of Caregivers of Children with Autism Spectrum Disorder

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**Abstract:** This study aimed to evaluate the effect of online social support (OSS) on the psychological well-being (PWB) of caregivers of children with autism spectrum disorder (ASD). The role of gender as a moderator variable in the relationship between online social support and psychological well-being was also investigated. A quantitative research design was used to collect data from 154 caregivers of children with ASD in Indonesia using PWB and OSS questionnaires adapted into Bahasa Indonesia. Data were analyzed using SMART PLS 3.0. Online social support influences the psychological well-being of caregivers of children with ASD. At the dimension level, several OSS dimensions also affect PWB. The effect of online social support on psychological well-being is the same in both the male and female groups. This means that male and female groups benefit equally from online social support. Future research should combine the study with a qualitative method to gather data from caregivers on how OSS affects their PWB in order to gain a holistic perspective. It could be a suggestion to policymakers to provide beneficial online social media for caregivers of children with ASD.

**Keywords:** Caregiver, neurodevelopmental disorder, online network.

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### Introduction

Autism spectrum disorder is a neurodevelopmental disorder characterized by a variety of syndromes, including impaired social communication, social interaction, restricted behavior, and interest. Syndromes persist throughout a person's life. Therefore, they need caregivers in their life. Caregivers help them in many aspects of their life. Most caregivers are parents or relatives' families. Since nurturing children with ASD is a long-time activity, many caregivers have psychological problems like distress, depression, and anxiety (Bones et al., 2019; Cohrs & Leslie, 2017; Demšar & Bakracevic, 2021; Khemakhem et al., 2020; Likhitweerawong et al., 2022; Machado et al., 2016; Porter & Loveland, 2019; Zheng et al., 2019). Research also finds that depression, anxiety, and stress decrease psychological well-being (Liu et al., 2009; Strizhitskaya et al., 2019). Social support is a source to improve the psychological well-being of caregivers of children with ASD, which comes from an excellent interpersonal relationship with others. A warm and supportive interaction by connecting with others produces the oxytocin hormone, which is advantageous for physical and psychological health (Agnew & South, 2014).

Research using a meta-analysis of structural equation models in caregivers of autistic children found that caregiver social support significantly predicts quality of life positively. Excellent quality of life indicates positive psychological well-being (Wang et al., 2022). Furthermore, extensive research has demonstrated that social support for caregivers of children with special needs, including children with autism, has an impact on psychological well-being (Halstead et al., 2018). However, in line with technological advances, many activities in human life happen through technology. Examples are services in the medical field, economic activities, and educational activities that occur through technological devices using a variety of social media platforms, including social support. Social support obtained through online media based on the internet is called online social support. Online social support gives emotional support and information, which they get easily and fast, as stated in Research by Reinke and Solheim (2015). Previous research also explains that the online support function acts as a stress buffer in everyday life.

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Online information from social media is beneficial because parents get valuable information regarding treatment for children. For example, parents get information about intervention through web-based video calls and WhatsApp introducing parent training to educate children with ASD (Aboo Bakar & Aboo Bakar, 2019; Azer et al., 2018). Therefore, children's problem behavior is solved, reducing parental stress, and increasing well-being (Choi & Noh, 2020; Dahiya et al., 2022).

We have yet to find research examining the effect of online social support on the psychological well-being of caregivers of autistic children, despite numerous studies demonstrating that these individuals have psychological issues that affect their psychological well-being and that they require support. Furthermore, we have not found studies revealing the role of gender in the contribution of online social support to psychological well-being. Therefore, this study aims to reveal the effect of online social support on the psychological well-being of caregivers of autistic children.

### *Gender Differences in Online Social Support and Psychological Well-Being*

Online social support can be defined as support obtained from others through activity on an online social network. Iwilade (2015) states that online social networks give some advantages, including membership globally in companionship, information, and social support. The ease with which those in need of information can access it is what makes information from online social networks useful to others. When someone requires information, it appears; in the interim, they do not obtain it from other sources. In addition, people no longer frequently exchange information immediately with one another due to the way they live. Online media makes it simpler for people to access information that helps them.

Metanalysis research (Tifferet, 2020) found that males and females behave differently using social network sites. Compared to males, females upload more photos than males and upload status more than males. Sometimes they share their emotional experiences through social media online, and it invites people to give comment and support. Females tend to get social support from others and give support to others compared to males (Tifferet, 2020). Females respond to stress by "tend and be a friend," according to Taylor, which explains why it varies from males. Males have reacted by running away or fighting. Females often make friends and talk about difficult things to make unpleasant events less likely. When they encounter other people who behave in the same way, the process of online social support takes place.

Online social support is believed to be effective in increasing psychological well-being for people with low psychological well-being (Hsu et al., 2020). Furthermore, it happens due to people posting their thought and feelings on social media, and it gets a response from other users, which these responses could be information or emotional.

Research about social support and well-being has been done in the following literature review section (Table 1). Still, little is unknown about the correlation of online social support on psychological well-being, specifically among caregivers of children with ASD. Furthermore, whether gender influences its correlation also still needs to be studied.

## **Literature Review**

### *Research Novelty*

Studies involving caregivers of autism and their mental health issues have been conducted many times—for example, stress, depression, and anxiety, decreasing psychological well-being. Research also found that caregivers experience reduced quality of life, which affects their mental health. In addition, research showed that social support is needed to maintain a good quality of life for autism caregivers. To increase understanding of the psychological well-being of caregivers of autistic children, the author has summarized several research themes related to psychological well-being and social support, especially research from 2014 to 2021 (see table 1).

Table 1. Research Novelty

No	Titles & authors	Methods	Results	Weaknesses	Strengths
1	Quality of Life in Caregivers of Children with Autism Spectrum Disorders: A Tunisian Study (Khemakhem et al., 2020)	Quantitative	Quality of life about 60.7 % of caregivers are impaired, 57.7% caregivers were depressed in line with the results of the study, researchers suggest the importance of providing support to people involved in caring for autistic children	Similarly, the research sample uses a non-random technique so that the results cannot be generalized to similar population	This study provides more specific information on what kind of condition of autistic children has a significant influence on the caregiver's quality of life
2	Depression in Parents of Children Diagnosed with Autism Spectrum Disorder: A Claims-Based Analysis  (Cohrs & Leslie, 2017)	Quantitative	Parents of children with ASD more likely to have a diagnosis of depression than parents of children without ASD.	The research sample only comes from private clinics, and the therapy costs are paid for by insurance. This study did not involve parents whose children receive therapy in public facilities. Therefore, the results cannot be generalized to different sample criteria.	The number of mothers balanced father's participation in this study. It is rarely the case in research involving parents of children with autism. Usually, more mothers are involved in similar research.
3	Parenting Styles, Parental Stress, and Quality of Life Among Caregivers of Thai Children with Autism  (Likhitweerawong et al., 2022)	Quantitative	Significantly greater parental stress scores ( $p < .001$ ) and poorer parental quality of life. Caregivers has a lot of pressure, meanwhile they have limitation of social support	The study did not include the severity and cognitive level of ASD, which might contribute to parenting styles of caregivers	The number of mothers balanced father's participation in this study. It is rarely the case in research involving parents of children with autism. Usually, more mothers are involved in similar research

Table 1. Continued

No	Titles & authors	Methods	Results	weaknesses	strengths
4	Correlates of Social Support and Family Quality of Life in Chinese Caregivers of Children with Autism Spectrum Disorder (Lei & Kantor., 2021)	Quantitative	Social support and family quality of life were significantly positively correlated and social support had a positive predictive power on family quality of life.	The study's sample size still needs to be bigger, and the sample is only taken from one city, so the study results are less precise when generalized.	Provide information if the difference in the level of social support caregivers receive affects their quality of life.
5	The effect of Formal and Informal Support on Health in the Context of Caregiving Stress (Gouin et al., 2016)	Quantitative	The results indicated that informal social support was associated with lower CRP and that a higher number of formal support services received by the family was related to better self-rated health, fewer daily somatic symptoms, and lower CRP (indicator of stress on health).	The research did not evaluate whether specific support services were more strongly related to parenting health.	The study provides health assessment using different methodologies involving both subjective (self-report) and objective markers (indicated if they have a high risk for cardiovascular disease)
6	Online Social Support Experiences of Mothers of Children with Autism Spectrum Disorder  (Reinke & Solheim, 2015)	Qualitative	The internet and associated online activities serve as important sources of both emotional and informal support.	The diagnosis of autism in children does not explicitly describe the level of autism gradation or the severity of autism symptoms.	Highlights the emergence of an understanding of the importance of online social support (informational and emotional) for mothers

Some of the strengths and weaknesses of the previous studies have also been summarized. The weakness of some studies, including in the method, where the number of samples is small, and the sampling method is non-random, so the research results cannot be generalized to samples that do not have similar characteristics. However, this study can provide specific information related to caregiver mental health. For example, the degree of autism severity and the level of social support caregivers receive also influences the caregiver's quality of life. Online social support can help caregivers deal with stressful situations.

### Psychological Well-Being

Happiness or eudaimonia, well-being, psychological health, and mental health, as well as adjustment behavior, are all words related to psychological well-being. These concepts describe how stress-coping skills of healthy people, which is something everyone strives for in life, are applied to daily living (Wells, 2010). The idea of psychological well-being came from Aristotle through the 'Eudaimonia' concept. The concept of human goodness is not happiness, feeling good or satisfying appetites, but human goodness is soul activities in accord with virtue. Two centuries later, this idea became part of the humanistic and existential approach. However, since 1980, studies on psychological well-being started focusing on happiness, life satisfaction, and positive affect (Ryff, 2014). Commonly, these topics discuss psychological well-being in two components that are positive and negative effects. Structurally, psychological well-being has two components: positive and negative affect (Wells, 2010). The more discrepancy between them, the higher of psychological well-being, the higher score of positive effects, and the lowest score of negative affect means that they have positive psychological well-being. Ryff (2014) started the research on psychological well-being in the 1980's. Her research about psychological well-being comprises six dimensions of psychological well-being: self-acceptance, environmental mastery, positive relationship with others, purpose in life, personal growth, and autonomy (Ryff & Singer, 1996). The dimensions

are built up from some theories such as self-actualization by Abraham Maslow, the theory of individuation by Carl Gustav Jung, the theory of mental health by Jahoda, the theory of will to meaning by Victor Frankl, the theory of personal development by Eric Erikson, theory of basic life tendencies by Buhler, theory of executive processes by Neugarten, theory of maturity from Allport and theory of fully functioning person by Carl Rogers (Ryff, 2014).

### *Online Social Support*

The concern for social support emerges caused by various physical and psychological stressors, such as natural disasters, joblessness, marriage, divorce, retirement, and bereavement—these stressors impact health and well-being. Social support is presumed to influence health and well-being (Sarason & Sarason, 1985).

Many terms describe the definition of social support. Sarason & Sarason (1985) have summarized the definition of social support from many theorists concerned with this issue. According to them, social support is feedback from others through cognitive guidance, tangible resources aid, and emotional sustenance in times of need. In addition, social support is information leading someone that he or she is loved, esteemed, and valued.

Along with the development of communication and information technology providing various social media facilities to interact with each other in cyberspace, people can socialize and support each other through online social media, including parents (Doty & Dworkin, 2014).

Online social support is described as group information obtained from social media, making people assure that he or she is noticed and loved. Online social support appears in esteem/emotional, informational, instrumental, and social companionship (Nick et al., 2018).

### *Hypothesis*

We propose two hypotheses in this study:

H1 Online social support positively influences psychological well-being.

H2 Gender will strengthen the relationship between online social support and psychological well-being.

## **Methodology**

### *Research Design*

A quantitative research design was used to collect data using questionnaires of psychological well-being and an online social scale adapted into Bahasa Indonesia. The study measured the effect of online social support on psychological well-being using the Online Social Support Scale (OSSS) and Psychological Well-Being Scale (PWB). PWB scale is developed from the theory of psychological well-being consisting of six dimensions self-autonomy, environmental mastery, personal growth, positive relation with others, purpose in life, and self-acceptance. Each scale was translated and adapted from English to Bahasa Indonesia. Scale translation and adaptation involve four translators certified in English and tested to 21 caregivers of children with autism. After following the translation and adaptation process, the item total for the PWB scale is 45 out of 86 items (basic version). Cronbach's alpha for each dimension of the PWB follows autonomy .787, environmental mastery .832, personal growth .754, positive relationship with others .844, purpose in life .867, and self-acceptance .901. PWB is a Likert-type scale in which response categories range from strongly disagree to strongly agree with scores 1, 2, 3, 4, and 5, respectively.

Meanwhile, OSSS consists of four dimensions: esteem or emotional, social companionship, informational, and instrumental support. After the following translation and adaptation of the process, the item total for OSSS 46 of 48 items (basic version). Cronbach's alpha for each dimension is esteem support .919, social companionship support .925, informational support .965, and instrumental support .896. Likewise, PWB scale, OSSS is a type of Likert scale with response categories ranging from never to a lot with scores of 0, 1, 2, 3 and 4, respectively.

Evaluation of the psychometric construct of the measurement tool was carried out for the second time as part of the SMART PLS process. Furthermore, the number of dimensions and items of each measuring instrument again undergoes depreciation. Psychological well-being consists of three dimensions: personal growth (3 items), purpose in life (3 items), and self-acceptance (2 items). Meanwhile, online social support consists of four dimensions: Esteem (10 items), social companionship (9 items), informational (12 items), and instrumental support (8 items). Reducing the dimensions of psychological well-being does not change the construct of psychological well-being because psychological well-being is multidimensional scale.

The researcher obtained approval from the Universiti Kelantan Malaysia before beginning the study. The participants in the study were caregivers of children with ASD who live in some provinces in Indonesia such as Yogyakarta, Riau, North Sumatera, West Sumatera, and South Sumatera. Their children attend therapy or school there.

*Population and Sample*

The inclusion criteria for this study are that all participants must have children with autism, the children got a diagnosis with an autism spectrum disorder by professionals, the children attend school or therapy, and caregivers and use online social media actively. The purposive sampling technique is applied to collect sample. Participants completed as many as 210 self-administered surveys. Of this number, 46 were eliminated due to incomplete responses. The final sample included 154 caregivers, 74.5 % of respondents were women, and 25.5 % were men (Table 2). Almost of them are married (97.5 %). Many participants are people between 30-35 years old, as many as 36.9 %, and only 7 % of participants are less than 30 years old. 72% of them are entrepreneurs, and only 7 % are teachers. All participants are online social media users, such as Facebook, WhatsApp, YouTube, and Instagram. They also get information about autism from them, but the most informative source about autism is WhatsApp (57.3 %), followed by YouTube, Facebook, and Instagram.

Furthermore, many of them spend 1-4 hours per day using social media. In line with their children's education, they also send their children to get therapy for children with autism, such as behavior therapy, speech therapy, and occupational therapy. Most children get combined therapy such as behavior therapy, speech therapy, and sensory therapy (about 46.5 %), followed by behavior therapy (40.1 %) as the second most popular therapy for children.

*Table 2. Demographic Data of Respondent*

Variable		Frequency	%
<b>Gender</b>	Male	40	25.5
	Female	117	74.5
<b>Status</b>	Married	153	97.5
	Divorce	4	2.5
<b>Age</b>	30 Years old	11	7
	30-35 years old	58	36.9
	36-40 years old	57	36.3
	More than 40 years old	31	19.7
<b>Occupation</b>	Civil Servant	9	5.7
	Entrepreneur	72	45.9
	Housewife	69	43.9
	Teacher	7	4.5
<b>Online Media Social</b>	Facebook	22	14
	WhatsApp	90	57.3
	YouTube	25	15.9
	Instagram	20	12.7
<b>Intensity use Online social media</b>	1-4 hours/day	128	
	4-6 hours/day	26	
	More than 6 hours/day	3	
<b>Therapy Followed by Children</b>	Behavior therapy	63	40.1
	Behavior Therapy, Speech Therapy & sensory therapy	73	46.5
	Behavior therapy & Occupational Therapy	2	1.3
	Occupational therapy and Physiotherapy	4	2.5
	Behavior therapy and Speech Therapy	6	3.8
	Speech Therapy	3	1.9

*Analyzing of Data*

Data were analyzed using partial least squares structural equation modeling (PLS-SEM) using the SmartPLS 3.0 software (Ringle et al., 2005). In this study, PLS-SEM analysis was conducted using a four-step process that included describing the model specification, determining the reflective construct's construct validity (discriminant and convergent validity), determining the reflective construct's reliability, and providing and interpreting the final statistic (Lowry & Gaskin, 2014).

## Findings / Results

### Evaluation of the Model

Two models—a structural model and a measurement model—make up the model assessment. The OSSS and PWB scales were used in the evaluation of the measurement model (Reflective Measurement).

Online social support consists of (OSSS) of four dimensions precisely esteem (E), social companionship (SC), informational (INF), and instrumental (INST). Meanwhile, psychological well-being (PWB) consists of three dimensions such as purpose in life (PIL), personal growth (PG), and self-acceptance (SA).

Since the measurement model is reflective, the evaluation of the measurement model includes the test of internal consistency, convergent validity, and discriminant validity. Measuring internal consistency consists of Cronbach's alpha and composite reliability. Meanwhile, measuring convergent validity contain indicator reliability and average variance extracted or AVE). Furthermore, the evaluation of discriminant validity includes the Fornell and Larcker criterion, cross-loading, and the heterotrait-monotrait or HTMT (Henseler & Fassott, 2010).

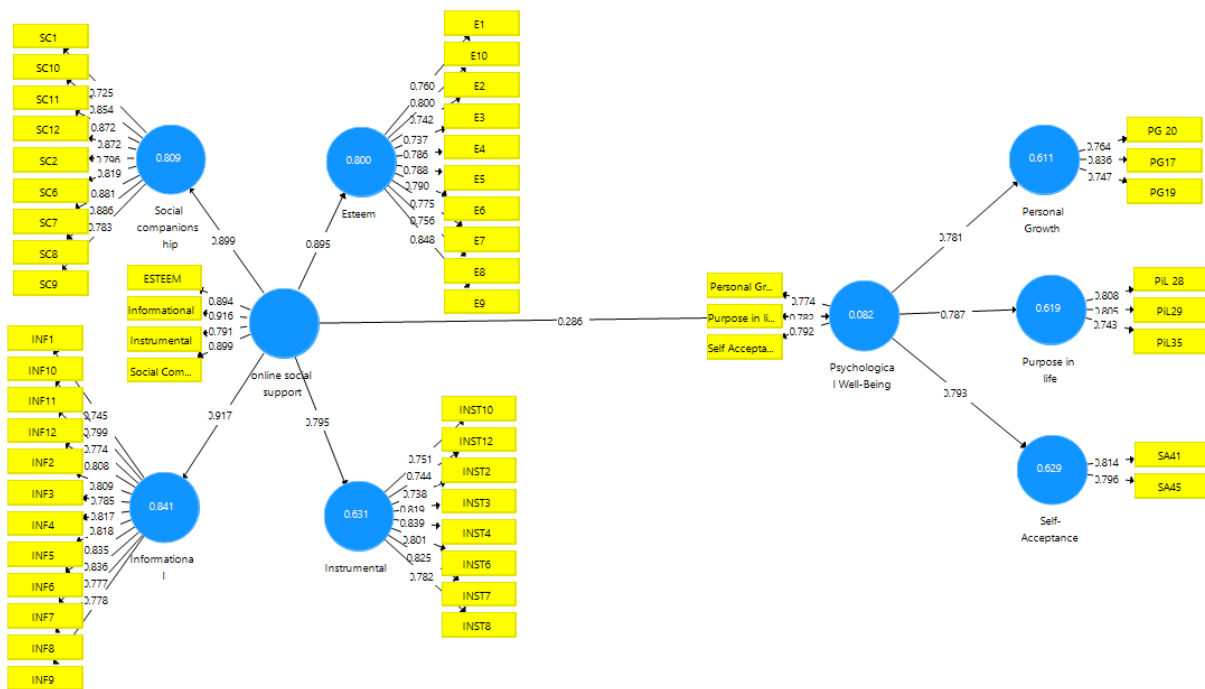


Figure 1. Loading Factor All Items

The first criterion to be evaluated in the reflective model is internal consistency reliability. The criterion used for internal consistency is Cronbach's alpha, which provides an estimate of the reliability based on the intercorrelations of the observed indicator variables (Hair et al., 2017). Table 3 describes the Cronbach's alpha score for each dimension. Most Cronbach's alpha's value is above 0,6, indicating good internal consistency. However, Cronbach's alpha for one dimension is 0.458 (self-acceptance, with two items). Since Cronbach's alpha estimation is sensitive to the number of items, this value is still accepted.

Furthermore, the value of composite reliability for self-acceptance is 0.787. The composite reliability range between 0 and 1, with higher values indicating higher levels of reliability. It is commonly interpreted in the same way as Cronbach's alpha. Furthermore, composite reliability values of 0.60 to 0.7 are acceptable in exploratory research (Hair et al., 2017).

Convergent validity means a set of indicators representing a latent variable and the underlying latent variable. It can be evaluated through Average Variance Extracted/AVE and outer loading. The AVE value is at least 0.5. This value describes adequate convergent validity, which means that a latent variable can explain more than half of the variance of its indicators on average. Outer loading represents the correlation between indicator and latent variables. Outer loading valid is the score above 0.708. The outer loading size is also called indicator reliability (Hair et al., 2017). The value of AVE can be seen in Table 3, in which all dimensions have AVE above 0.5. Meanwhile, the outer loading of all indicators is described in Table 4 and Figure 1. All indicators have outer loading above 0.708.

Table 3. Construct Validity and Reliability

Dimensions	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Esteem	0.928	0.929	0.939	0.607
Informational	0.948	0.929	0.955	0.638
Instrumental	0.912	0.915	0.929	0.621
Personal Growth	0.685	0.695	0.826	0.613
Purpose in life	0.690	0.694	0.829	0.617
Self-Acceptance	0.458	0.458	0.787	0.648
Social companionship	0.945	0.948	0.953	0.695

Discriminant validity describes to what extent a construct differs from other constructs empirically. Therefore, discriminant validity hint that a construct is unique and captures phenomena not represented by other constructs in the model (Hair et al., 2017). The discriminant validity for the scale of online social support and psychological well-being is established, showed through the value of cross loading, Fornell and Larcker, and HTMT fulfill the standardized. The value of cross-loading is described in table 5. The correlation between items and its dimension is more significant than the correlation between the variable with another dimension (see the bold number). HTMT is the ratio of the between-trait correlations to the within-trait correlations. HTMT is the mean of all correlations of indicators across constructs measuring different constructs (i.e., the heterotrait-hetero-method correlations) relative to the (geometric) mean of the average correlations of indicators measuring the same construct (Hair et al., 2017). The acceptable value of HTMT is less than 1. Table 6 shows the value of HTMT, and many dimensions have HTMT values less than 1.

Table 4. Outer Loading All Indicators

Items	Esteem	Informa tional	Instru mental	Personal Growth	Psycholo gical Well- Being	Purp ose in life	Self- Accept ance	Social companio nship	online social support
E1	0.760								
E10	0.800								
E2	0.742								
E3	0.737								
E4	0.786								
E5	0.788								
E6	0.790								
E7	0.775								
E8	0.756								
E9	0.848								
Esteem									0.894
INF1		0.745							
INF10		0.799							
INF11		0.774							
INF12		0.808							
INF2		0.809							
INF3		0.785							
INF4		0.817							
INF5		0.818							
INF6		0.835							
INF7		0.836							
INF8		0.777							
INF9		0.778							
INST10			0.751						
INST12			0.744						
INST2			0.738						
INST3			0.819						
INST4			0.839						
INST6			0.801						
INST7			0.825						
INST8			0.782						



Table 4 Continued

Items	Esteem	Informational	Instrumental	Personal Growth	Psychological Well-Being	Purpose in life	Self-Acceptance	Social companionship	online social support
Informational									0.916
Instrumental									0.791
PG 20				0.764					
PG17				0.836					
PG19				0.747					
Personal Growth					0.774				
PiL 28						0.808			
PiL29						0.805			
PiL35						0.743			
Purpose in life					0.782				
SA41							0.814		
SA45							0.796		
SC1								0.725	
SC10								0.854	
SC11								0.872	
SC12								0.872	
SC2								0.796	
SC6								0.819	
SC7								0.881	
SC8								0.886	
SC9								0.783	
Self-Acceptance					0.792				
Social Companionship									0.899

E is for esteem; INF is for instrumental; Inf is for informational; Sc for social companionship; PG is for Personal growth; PiL is for purpose in life; SA is for social acceptance

Fornell and Larcker criterion (root square AVE) is the last method to assess whether discriminant validity is established. Fornell and Larcker criterion assesses discriminant validity by comparing the root value of AVE (Fornell and Larcker Criterion) with the correlation value between latent variables. The AVE root value must be greater than the correlation between latent variables. Fornell and Larcker's criterion for the dimensions of a variable are depicted in table 7. The value meets the criteria in which the root of AVE (bold number) is higher than a correlation between latent variables.

Table 5. Cross Loading

Items/ Indicators	Esteem	Informational	Instrumental	Personal Growth	Psychological Well-Being	Purpose In Life	Self-Acceptance	Social Companionship	Online Social Support
E1	<b>0.760</b>	0.598	0.445	0.213	0.245	0.115	0.243	0.595	0.687
E10	<b>0.800</b>	0.651	0.474	0.296	0.351	0.235	0.285	0.554	0.709
E2	<b>0.742</b>	0.578	0.493	0.151	0.244	0.118	0.297	0.550	0.674
E3	<b>0.737</b>	0.520	0.420	0.215	0.275	0.216	0.219	0.570	0.644
E4	<b>0.786</b>	0.675	0.482	0.172	0.283	0.216	0.273	0.571	0.719
E5	<b>0.788</b>	0.644	0.519	0.281	0.268	0.129	0.209	0.627	0.737
E6	<b>0.790</b>	0.577	0.442	0.362	0.301	0.142	0.199	0.653	0.708
E7	<b>0.775</b>	0.546	0.397	0.338	0.346	0.133	0.328	0.674	0.688
E8	<b>0.756</b>	0.510	0.391	0.247	0.222	0.029	0.238	0.602	0.650

Table 5. Continued

Items/ Indicators	Esteem	Informational	Instrumental	Personal Growth	Psychological Well-Being	Purpose In Life	Self- Acceptance	Social Companionship	Online Social Support
E9	<b>0.848</b>	0.609	0.518	0.297	0.343	0.213	0.289	0.618	0.741
ESTEEM	1.000	0.758	0.587	0.334	0.370	0.197	0.330	0.774	<b>0.894</b>
INF1	0.615	<b>0.745</b>	0.452	0.178	0.185	0.081	0.164	0.623	0.701
INF10	0.563	<b>0.799</b>	0.525	0.226	0.254	0.160	0.205	0.613	0.716
INF11	0.547	<b>0.774</b>	0.517	0.206	0.240	0.133	0.218	0.636	0.709
INF12	0.616	<b>0.808</b>	0.557	0.239	0.207	0.097	0.143	0.633	0.746
INF2	0.653	<b>0.809</b>	0.441	0.213	0.189	0.056	0.170	0.705	0.751
INF3	0.580	<b>0.785</b>	0.478	0.145	0.171	0.083	0.170	0.605	0.703
INF4	0.625	<b>0.817</b>	0.571	0.230	0.198	0.120	0.113	0.573	0.737
INF5	0.602	<b>0.818</b>	0.559	0.219	0.205	0.138	0.128	0.596	0.733
INF6	0.686	<b>0.835</b>	0.558	0.165	0.175	0.102	0.141	0.709	0.797
INF7	0.648	<b>0.836</b>	0.557	0.220	0.181	0.080	0.133	0.702	0.785
INF8	0.587	<b>0.777</b>	0.608	0.207	0.199	0.133	0.133	0.565	0.722
INF9	0.554	<b>0.778</b>	0.520	0.199	0.278	0.254	0.198	0.510	0.675
INST10	0.368	0.481	<b>0.751</b>	0.218	0.168	0.025	0.147	0.440	0.574
INST12	0.507	0.623	<b>0.744</b>	0.156	0.101	0.011	0.060	0.603	0.697
INST2	0.395	0.424	<b>0.738</b>	0.096	0.110	0.087	0.080	0.395	0.546
INST3	0.518	0.570	<b>0.819</b>	0.267	0.246	0.148	0.161	0.444	0.660
INST4	0.534	0.574	<b>0.839</b>	0.152	0.114	0.050	0.065	0.482	0.680
INST6	0.421	0.467	<b>0.801</b>	0.127	0.075	0.049	-0.002	0.403	0.585
INST7	0.449	0.472	<b>0.825</b>	0.127	0.067	0.040	-0.017	0.431	0.608
INST8	0.493	0.525	<b>0.782</b>	0.148	0.100	0.038	0.046	0.440	0.628
INFORMATI ONAL	0.760	1.000	0.660	0.255	0.259	0.149	0.200	0.781	<b>0.916</b>
INSTRUME NTAL	0.585	0.657	1.000	0.206	0.157	0.071	0.087	0.578	<b>0.791</b>
PG 20	0.347	0.229	0.189	<b>0.764</b>	0.614	0.346	0.315	0.234	0.286
PG17	0.224	0.157	0.139	<b>0.836</b>	0.679	0.399	0.410	0.121	0.184
PG19	0.207	0.224	0.162	<b>0.747</b>	0.531	0.238	0.240	0.202	0.229
Personal Growth	0.336	0.263	0.210	0.997	<b>0.774</b>	0.416	0.407	0.242	0.302
PiL 28	0.153	0.126	0.091	0.288	0.597	0.808	0.317	0.065	0.125
PiL29	0.186	0.217	0.115	0.447	0.670	0.805	0.375	0.086	0.174
PiL35	0.127	-0.008	-0.050	0.253	0.582	0.743	0.370	-0.051	0.007
Purpose in life	0.197	0.137	0.063	0.414	<b>0.782</b>	0.998	0.450	0.040	0.126
SA41	0.207	0.089	-0.020	0.258	0.652	0.497	<b>0.814</b>	0.088	0.108
SA45	0.329	0.234	0.162	0.419	0.625	0.224	<b>0.796</b>	0.226	0.275
SC1	0.664	0.601	0.364	0.207	0.179	0.026	0.170	<b>0.725</b>	0.681
SC10	0.634	0.684	0.467	0.207	0.182	0.063	0.152	<b>0.854</b>	0.759
SC11	0.710	0.674	0.568	0.211	0.156	-0.002	0.149	<b>0.872</b>	0.807
SC12	0.734	0.730	0.594	0.284	0.240	0.055	0.208	<b>0.872</b>	0.838
SC2	0.664	0.617	0.461	0.190	0.132	-0.051	0.165	<b>0.796</b>	0.728
SC6	0.491	0.577	0.424	0.034	0.049	-0.012	0.086	<b>0.819</b>	0.663
SC7	0.648	0.681	0.507	0.176	0.167	0.065	0.144	<b>0.881</b>	0.778
SC8	0.674	0.699	0.528	0.210	0.205	0.091	0.173	<b>0.886</b>	0.798
SC9	0.543	0.573	0.414	0.201	0.216	0.107	0.197	<b>0.783</b>	0.667
Self- Acceptance	0.336	0.205	0.094	0.425	<b>0.792</b>	0.439	0.999	0.199	0.243
Social Companion ship	0.770	0.782	0.581	0.232	0.206	0.048	0.194	0.999	<b>0.899</b>

Bold numbers show correlation between indicator and its dimension and correlation between dimension and its variable.

Table 6. HTMT

	Esteem	Informational	Instrumental	Personal Growth	Purpose in life	Self-Acceptance	Social companionship
Esteem	0.808						
Informational	0.635	0.706					
Instrumental	0.414	0.322	0.261				
Personal Growth	0.251	0.212	0.137	0.599			
Purpose in life	0.511	0.306	0.201	0.737	0.795		
Self-Acceptance	0.822	0.822	0.618	0.293	0.116	0.296	
Social companionship							

Table 7. Fornell Larcker

	Esteem	Informational	Instrumental	Personal Growth	Psychological Well-Being	Purpose in life	Self-Acceptance	Social companionship	online social support
Esteem	<b>0.779</b>								
Informational	0.761	<b>0.799</b>							
Instrumental	0.590	0.662	<b>0.788</b>						
Personal Growth	0.331	0.255	0.206	<b>0.783</b>					
Psychological Well-Being	0.371	0.258	0.156	0.781	<b>0.783</b>				
Purpose in life	0.200	0.148	0.071	0.426	0.787	<b>0.786</b>			
Self-Acceptance	0.331	0.199	0.086	0.418	0.793	0.451	<b>0.805</b>		
Social companionship	0.772	0.781	0.582	0.233	0.206	0.046	0.193	<b>0.834</b>	
Online social support	0.895	0.917	0.795	0.294	0.286	0.134	0.236	0.899	<b>0.876</b>

Bold numbers show the score of the roots of AVE in the construct which are higher than the correlation between construct and other latent variable.

Table 8. Cross Loading

	Online Social Support	Psychological Well-Being
Esteem	<b>0.925</b>	0.389
Informational	<b>0.911</b>	0.274
Social Companionship	<b>0.894</b>	0.236
Instrumental	<b>0.754</b>	0.175
Personal Growth	0.312	<b>0.842</b>
Purpose in life	0.141	<b>0.673</b>
Self-Acceptance	0.263	<b>0.799</b>

Note: The bold number represents the correlation between the dimension, and its variable is greater than the correlation between the dimension and another variable.

### Evaluation of Structural Model

#### Hypothesis 1

The fundamental criteria for evaluating the structure model consist of coefficient of determination (R<sup>2</sup>), estimation of path coefficient ( $\beta$ ), and prediction relevance. R<sup>2</sup> describes the amount of variance explained in the endogenous construct by the latent exogenous construct,  $\beta$  describes the hypothetical relationships between latent variables in the structural model, and Q<sup>2</sup> identifies the model's ability to predict the endogenous variables in the model (Henseler & Fassott, 2010). More ever score of  $r = .340$  for the correlation is categorized as moderate (Cohen et al., 2000). Therefore,  $r = .328$  ( $R^2 = .082$ ) in the study is considered as moderate (Figure 3).

The path Coefficient is obtained through PLS Algorithm, and bootstrapping is used to assess whether the path coefficient is significant or not. The bootstrapping results indicate that all path coefficients are statistically significant  $p$  value = .000 levels, standard deviation = .059; T statistic = 5.786 (Figure 2). Furthermore, Q square also can be used to assess whether

the exogenous variable fit to predict endogenous variables. The technique uses blindfolding analysis (Henseler & Fassott, 2010).

Blindfolding is an analysis used to assess the level of relevance of predictions from a construct model. The analysis process uses the value of Q Square (Table 6). If Q Square > 0.05, it can be concluded that a construct model is relevant. In this study, the value of Q Square is 0.058. Therefore, OSS is used to predict the endogenous variables correct.

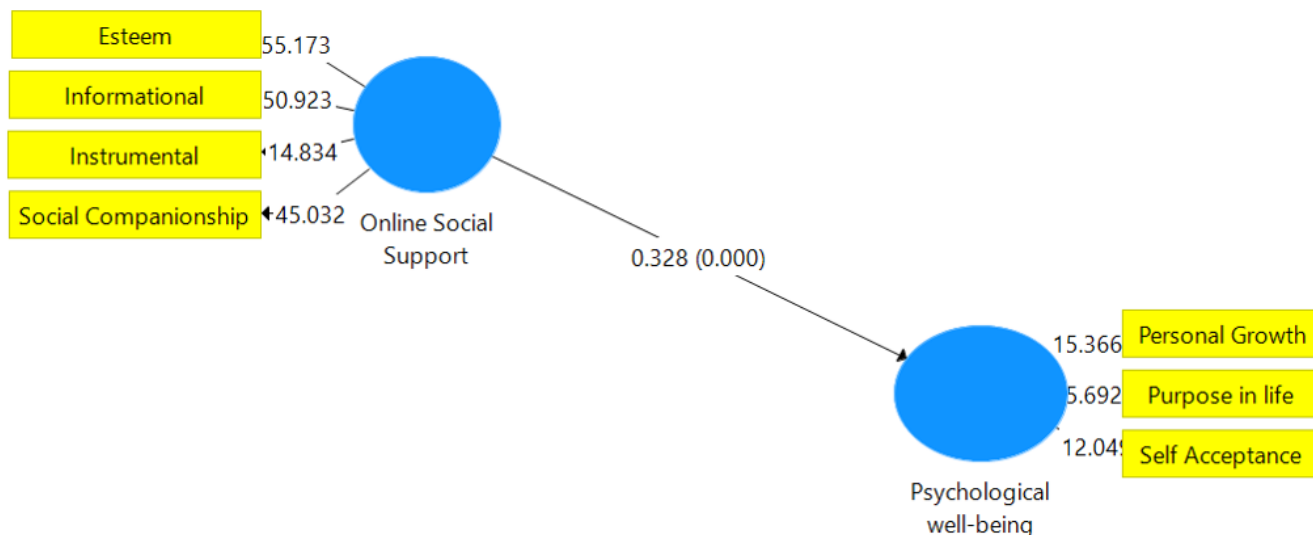


Figure 2. Bootstrapping Output

Table 6. Q Square Output

	SSO	SSE	Q <sup>2</sup> (=1-SSE/SSO)
Online Social Support	628.000	628.000	
Psychological well-being	471.000	449.329	0.058

Hypothesis 2

PLA MGA test was administered to measure whether gender strengthens the relationship between online social support and psychological well-being. There are four steps: preparation, generating data group, measurement invariance test, and analysis using MGA approaches in PLS-SEM. Steps one and two were fulfilled because the data matched statistical power, and two groups were analyzed. Measurement invariance test using measurement invariance of composite model approach or MICOM. MOCOM has three processes: configural invariance, compositional invariance, and scalar invariance or equality of composite mean and variances (Hair et al., 2017).

Configurational invariances aim to determine how accurately the concept is represented by the indicators. The construct of this research is already represented by the indicators, and the measuring instrument test also demonstrates this. Furthermore, the compositional invariance test is insignificant for two construct permutation p values for both constructs are greater than 0.05 (permutation p-value =0.721 and 0.833). It means both male and female groups have the same opinion regarding psychological well-being and online social support.

Table 7. Compositional Invariance

	Original Correlation	Correlation Permutation Mean	5.0%	Permutation p-Values
Online social support	0.998	0.976	0.964	0.721
Psychological Well-being	0.992	0.918	0.671	0.833

Furthermore, it also is confirmed by the scalar invariance test, which showed that there was no differentiation in a variance of online social support and psychological well-being for both groups (Table 8). Permutation p-value for online social support and psychological well-being > 0.05 (0.641 and 0.374). By looking at the results of the MICOM test, the MGA test does not need to be done because the results of the MICOM test show that groups and groups of women have the same contribution in terms of the effect of online social support on psychological well-being. However, to support this assumption, we still carried out the MGA test, and the result was that the contributions of the male and female groups were the same in terms of the effect of online social support on psychological well-being (table 9. MGA Test)

Table 8. Scalar Invariance

	Mean - Original Difference (Male - Female)	Mean - Permutation Mean Difference (Male - Female)	2.5%	97.5%	Permutation p-Values	Variance - Original Difference (Male - Female)	Variance - Permutation Mean Difference (Male - Female)	2.5%	97.5%	Permutation p-Values
Online social support	0.230	0.017	-0.330	0.374	0.234	0.107	-0.051	-0.538	0.394	0.641
Psychological Well-being	-0.232	0.004	-0.337	0.356	0.189	0.260	-0.045	-0.617	0.462	0.374

Table 9. MGA Test

PLS-MGA	Path Coefficients-diff (Female - Male)	p-Value original 1-tailed (Female vs Male)	p-Value new (Female vs Male)
Online social support -> Psychological Well-being	-0.015	0.597	0.805
<b>Parametric Test</b>			
Online social support -> Psychological Well-being	-0.015	0.107	0.915
<b>Welch-Satterthwaite Test</b>			
Online social support -> Psychological Well-being	-0.015	0.087	0.931

All three MGA tests: PLS MGA, parametric test, and Welch-Satterthwaite, show that gender does not strengthen the effect of online social support on psychological well-being or that both male and female groups contribute the same on the effect of online social support to psychological well-being. Therefore, hypothesis is rejected.

Additional Analysis

There are two additional analyzes applied. The first analysis measures the effect of the OSSS dimension on the psychological well-being dimension, and the second is the PLS MGA analysis at the dimension level.

Of four dimensions of online social support (Esteem, online social support, informational, instrumental), only esteem influences purpose in life (path coefficient =0.389, and p value=0.041), self-acceptance (path coefficient =0.486, and p value=0.004, and personal growth (path coefficient=0.378, and p value=0,022). Meanwhile, social companionship impact on purpose in life (path coefficient =-0.363, and p value=0.014). Path coefficient can be seen in figure 3.

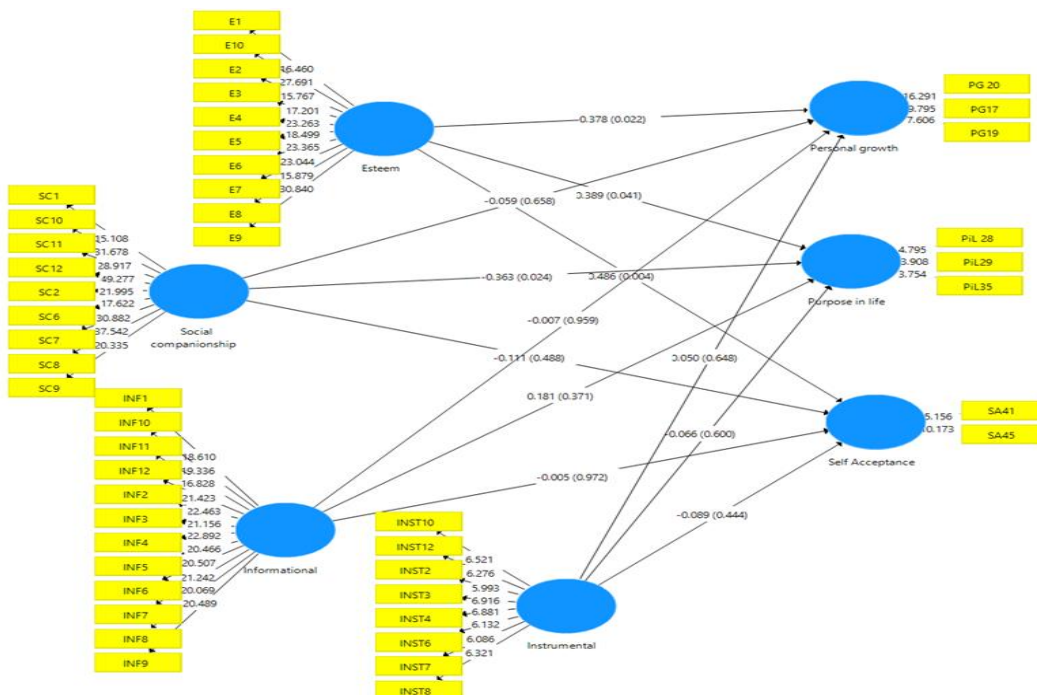


Figure 3. Path Coefficient Among Dimensions of Constructs

The MGA test was administered to determine whether gender strengthens the relationship between each OSS dimension and PWB dimension. The stages of MGA Measurement are the same as the stages of measurement at the construct level, as previously mentioned. Configural analysis also meets the requirements; each indicator reflects the measured construct (confirmed by valid and reliable model measurement results). Furthermore, the compositional invariance test is insignificant for all dimensions, shown by permutation p values of all variables > 0.05 (Table 10).

Table 10. Composite Invariance

	Original Correlation	Correlation Permutation Mean	5.0%	Permutation p-Values
Esteem	0.997	0.988	0.977	0.713
Informational	0.996	0.988	0.974	0.678
Instrumental	0.985	0.945	0.843	0.592
Personal Growth	0.965	0.955	0.848	0.243
Purpose in life	0.984	0.877	0.428	0.791
Self-Acceptance	0.982	0.923	0.613	0.521
Social Companionship	0.995	0.984	0.970	0.580

It means both male and female groups have the same opinion regarding psychological well-being and online social support. However, scalar invariance shows that there is an average difference between men and women in terms of instrumental support, and the difference is statistically significant (permutation p-value = 0.041 < 0.05) (Table 11). Due to the difference in the average social support instrument for men and women, the MGA test was carried out. There are three types of MGA tests: PLS MGA, parametric test, and Welch-Satterthwaite. Of the three types of tests, only the parametric test type has a significant result. Compared to men, instrumental support for women contributes to personal growth and purpose in life. Alternatively, there are differences in instrumental support for personal growth and purpose in life in women and men.

Table 11. Scalar Invariance

	Mean - Original Difference (Female - Male)	Mean - Permutation Mean Difference (Female - Male)	2.5%	97.5%	Permutation p-Values	Variance - Original Difference (Female - Male)	Variance - Permutation Mean Difference (Female - Male)	2.5%	97.5%	Permutation p-Values
Esteem	-0.145	0.003	-0.357	0.382	0.418	0.093	0.014	-0.429	0.522	0.717
Informational	-0.145	0.007	-0.356	0.357	0.456	-0.061	0.004	-0.431	0.467	0.787
<b>Instrumental</b>	<b>-0.365</b>	0.007	-0.348	0.370	<b>0.041</b>	-0.307	0.016	-0.426	0.484	0.189
Personal Growth	0.215	-0.001	-0.340	0.393	0.242	-0.020	0.029	-0.567	0.605	0.961
Purpose in life	0.227	-0.006	-0.360	0.335	0.214	-0.188	0.040	-0.535	0.628	0.530
Self-Acceptance	0.056	0.003	-0.372	0.360	0.747	0.129	0.028	-0.541	0.640	0.682
Social Companionship	-0.214	0.008	-0.340	0.367	0.237	0.290	0.018	-0.418	0.445	0.199

Table 12. MGA Test

	Path Coefficients-diff (Female - Male)	p-value original 1-tailed (Female vs Male)	p-value new (Female vs Male)
<b>PLA-MGA Test</b>			
Esteem -> Personal growth	-0.154	0.674	0.651
Esteem -> Purpose in life	-0.514	0.888	0.224
Esteem -> Self-Acceptance	-0.47	0.891	0.218
Informational -> Personal growth	0.292	0.227	0.455
Informational -> Purpose in life	-0.286	0.763	0.475
Informational -> Self-Acceptance	0.059	0.481	0.963
Instrumental -> Personal growth	0.563	0.051	0.101
Instrumental -> Purpose in life	0.67	0.058	0.116
Instrumental -> Self-Acceptance	0.406	0.16	0.321
Social companionship -> Personal growth	-0.619	0.915	0.171
Social companionship -> Purpose in life	-0.034	0.53	0.941
Social companionship -> Self-Acceptance	-0.046	0.536	0.929

Table 12. Continued

	Path Coefficients-diff (Female - Male)	p-value original 1- tailed (Female vs Male)	p-value new (Female vs Male)
<i>Parametric Test</i>			
<i>Esteem -&gt; Personal growth</i>	-0.154	0.39	0.697
<i>Esteem -&gt; Purpose in life</i>	-0.514	1.032	0.304
<i>Esteem -&gt; Self-Acceptance</i>	-0.47	1.206	0.23
<i>Informational -&gt; Personal growth</i>	0.292	0.782	0.435
<i>Informational -&gt; Purpose in life</i>	-0.286	0.58	0.563
<i>Informational -&gt; Self-Acceptance</i>	0.059	0.153	0.878
<i>Instrumental -&gt; Personal growth</i>	0.563	2.125	0.035
<i>Instrumental -&gt; Purpose in life</i>	0.67	2.092	0.038
<i>Instrumental -&gt; Self-Acceptance</i>	0.406	1.341	0.182
<i>Social companionship -&gt; Personal growth</i>	-0.619	1.725	0.087
<i>Social companionship -&gt; Purpose in life</i>	-0.034	0.083	0.934
<i>Social companionship -&gt; Self-acceptance</i>	-0.046	0.123	0.903
<i>Welch Test</i>			
<i>Esteem -&gt; Personal growth</i>	-0.154	0.674	0.651
<i>Esteem -&gt; Purpose in life</i>	-0.514	0.888	0.224
<i>Esteem -&gt; Self-Acceptance</i>	-0.47	0.891	0.218
<i>Informational -&gt; Personal growth</i>	0.292	0.227	0.455
<i>Informational -&gt; Purpose in life</i>	-0.286	0.763	0.475
<i>Informational -&gt; Self-Acceptance</i>	0.059	0.481	0.963
<i>Instrumental -&gt; Personal growth</i>	0.563	0.051	0.101
<i>Instrumental -&gt; Purpose in life</i>	0.67	0.058	0.116
<i>Instrumental -&gt; Self-Acceptance</i>	0.406	0.16	0.321
<i>Social companionship -&gt; Personal growth</i>	-0.619	0.915	0.171
<i>Social companionship -&gt; Purpose in life</i>	-0.034	0.53	0.941
<i>Social companionship -&gt; Self-Acceptance</i>	-0.046	0.536	0.929

Briefly, according to data analysis, one of three MGA test show that the female group gives contribution in impact of instrumental support (Online social support) to personal development (psychological well-being) than male group. Parametric test show that female group contribute to impact instrumental to personal growth and purpose in life.

### Discussion

Our results show that online social support influences the psychological well-being of caregivers of children with autism significantly. Meanwhile, gender does not contribute to the effect of online social support on psychological well-being. To our knowledge, it is the first study examining the effect of online social support on the psychological well-being of caregivers of children with autism. While the previous study examined the effect of perceived social support on psychological well-being on caregivers of children with autism (Hussein & Mohammed, 2021), our study measured online social support's contribution to psychological well-being. Another study examines the effect of religiosity and resilience on psychological well-being (Alsa et al., 2021). Since social media based on the internet has developed recently and is used by many people, including caregivers of autism, it is critical to know the effect of online social support on the psychological well-being of caregivers of children with autism.

A critical review described the benefit of online social support to parents: it gives emotional and informational support, overcoming isolation, shares experiences, builds self-esteem, and gets empathy and encouragement from the online environment (Doty & Dworkin, 2014). Research by Dada (2019) revealed that parents of children with ASD use online social media such as Instagram as a tool for sharing personal information, providing encouragement, providing informative content, and giving appreciation and solidarity. For example, caregivers get information from a therapist through WhatsApp on how to treat children with autism (Esentürk & Yarımkaya, 2021; Mohd Roffeei et al., 2015). In this stage, they use online social media as instrumental, informational, Esteem, and social companionship support to solve problems, and as we know, when problems solve, it reduces stress, and lower stress is linked with psychological well-being (Cai et al., 2020; Hickey et al., 2020; Nikmat et al., 2008). Caregivers who know what to do with autistic children will encourage the growth of feelings of acceptance and improve their well-being.

Furthermore, in line with caregivers' efforts to find information on handling autistic children on social media, they also improve their capabilities (dimension of PWB). They learn things they did not know before; this behavior shows personal growth. In addition, their behavior shows as people with a purpose in life (dimension of PWB). They have a purpose when they open online social to find and learn new skills in line with handling children with autistic. In addition, mothers of

children with autism who have good psychological well-being are associated with acceptance of the homemaking role (Temiz, 2020). The caregiver should accept this role because they have a significant role in the child's education process.

In the level dimension, some dimensions of online social support influence psychological well-being, namely Esteem and social companionship. Esteem influences self-acceptance, personal growth, and purpose in life. Meanwhile, social companionship also influences purpose in life.

Esteem happens when someone feels his or her information is valued or accepted by others (Nick et al., 2018). Meanwhile, according to the theory of psychological well-being, self-acceptance happens when they have a positive attitude toward themselves and accept all experiences they have, bad or good (Ryff & Singer, 1996). Esteem influences self-acceptance, personal growth, and life purpose and correlates positively. It implies that the more a caregiver is valued or accepted, the more optimistically they will view themselves; their life's mission will become clearer; and the more they will enhance their own quality of life. Regarding online social support, Esteem means feeling accepted or appreciated by people (Nick et al., 2018). It is a positive experience because people feel others accept them and make them feel worthy. Being accepted by others is a satisfying experience and an indication that people connect with one another. According to the self-determination theory, having experiences and having relationships with other people provide motivation to act in a certain manner (Legault, 2017). It explains why participants of this study show self-acceptance, having a purpose in life, and a desire to grow personally because they are motivated to do something. Social companionship concerning online social support means spending time with others in leisure and recreational activities (Nick et al., 2018). Social companionship describes people who have good relationships with other people. It allows people to interact with others more often, exchange experiences, and sometimes learn from others' experiences. It is called social learning when they share something about their purpose in life and inspire them to do the same things. Social learning theory is the idea that people learn from their interactions with others in a social context; by observing others' behavior, people learn new behaviors by assimilating and imitating that behavior (Tadayon Nabavi, 2012).

The results showed that gender does not affect the contribution of online social support to psychological well-being. It means that the male and female groups have the same contribution regarding the effect of online social support on psychological well-being. However, at the dimensional level, there are differences in the contribution of instrumental support to purpose in life and personal growth in groups of men and women. One of three MGA tests, the parametric test, shows that the female group influences instrumental support to personal growth and instrumental support to purpose in life more than the male group. However, the parametric test has disadvantages as the parametric test approach is relatively lenient and subject to type I errors. In addition, the approach also relies on the assumption of normal distribution, which is inconsistent with the nature of PLS that uses non-parametric assumptions (Hair et al., 2017).

However, even if there is a difference between the male and female groups, it could be explained by the fact that females who use online social media (as instrumental support) tend to create friends with others while males tend to give information to others (Sun et al., 2020). There is a procedure that takes place in order to get to know people, such as telling stories, listening to stories, and exchanging ideas. The method may advance on its own. A component of personal development is self-improvement, and psychological wellbeing is a component of personal growth. Instrumental support enhances the provider's and recipient's well-being (Morelli et al., 2015). According to this study, well-being is a condition where someone feels happy and free from loneliness, stress, and anxiety. People with higher levels of personal growth were associated with lower anxiety (Hardin et al., 2007). Therefore, people with higher personal growth are having well-being. Furthermore, instrumental support influences females' well-being (personal growth) because they use it to share an idea or thought, giving them insight into personal growth.

Experiment research on students aims to measure students' growth given acute stress in a laboratory setting and show that students with high personal growth are free from stress. Personal growth was measured using the scale from Carol Ryff. It found that students with high personal growth have lower adrenalin and higher parasympathetic nervous system activity before and after acute stress. Lower adrenalin and higher parasympathetic indicate that people are free from stress (Mihara et al., 2020). It means personal growth influences stress conditions and correlates negatively. The higher the personal growth, the lower the stress conditions.

In addition, women give more contributions in line with the influence of instrumental support to personal growth and purpose in life. Online social media help women to improve themselves and learn something new, which means the motivation to improve themselves is a sign of well-being. Some research shows women use online social media to self-improvement by doing something new in their life (AlAmmary, 2022; Ferraz et al., 2022). Through qualitative research, parents of children with ASD use social media, Instagram, for purposes such as sharing personal information, providing encouragement, providing information content, appreciation, and solidarity (Dada, 2019). In line with encouraging others, people should have relations or social ties. Therefore, encouraging others means they must relate with them or have social ties, which are part of the social dimension of personal growth (Recksiedler et al., 2018).

### Conclusion

Caregivers of children with ASD face enormous challenges, and a large body of research indicates that many caretakers experience psychological health problems while raising their children. Therefore, knowing how to establish good



psychological well-being is crucial. The results of this study are expected to contribute to the scientific fields of clinical psychology and educational psychology. It is essential to pay attention to the psychological well-being of caregivers. Psychologically healthy caregivers are expected to be able to contribute optimally to the process of education and childcare. The results of this study are expected to be able to answer the role of online social media as a tool for providing social support to caregivers who have children with autism.

### Recommendations

In general, online social support influences psychological well-being. For future studies, it is suggested that researchers use qualitative methods to obtain data from caregivers about how online social support affects their psychological well-being so that a holistic perspective is obtained regarding how online social support impacts the psychological well-being of caregivers of children with autism.

### Limitations

The sample following the research was caregivers of children with ASD whose age variation of children is between toddlers and adults. The result obtained in the study has not described how to impact online social support on the psychological well-being of caregivers of children with ASD according to the age period children. Further research must limit the age of children with autism nurtured by caregivers. The next study is suggested to combine the study with a qualitative method to gain data from caregivers on how online social support impact their psychological well-being, so a holistic viewpoint is gained.

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### Authorship Contribution Statement

Napitupulu: Contributed to drafting the manuscript, developing the theory, distributing the questionnaires to the respondents, and data analysis /interpretation. Kurniawan: Conceived the idea of research and supervised the research.

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