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Article

Review

ARTICLE

Effect of Exercise and Sham Exercise Trackers on Perceived Workout Intensity and Mood in College Students

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ARTICLE INFO	ABSTRACT

Exercise is an essential contributor to both physical and mental health and is a significant part of a person's overall lifestyle. With the increasing popularity of exercise trackers, researchers were interested in the effects of sham exercise trackers on perceptions of workouts and affect. Researchers predicted participants wearing a sham Fitbit band would report greater perceptions of workout intensity, challenge, and satisfaction compared to those without sham Fitbit bands. In addition, those wearing sham Fitbit bands were predicted to report greater positive affect and lower negative affect than those without bands. One hundred twenty student participants (60 in each group; one group with a sham Fitbit and one group with no Fitbit) were recruited from campus workout classes of Zumba, spinning, and body sculpting. Participants worked out and completed a PANAS survey, plus other workout perception questions. When using a sham Fitbit, participants believed the workout was more intense, physically challenging, and they were more satisfied with their workout. However, presence of a sham Fitbit band did not significantly affect mood. Results suggest that knowledge of wearing an exercise tracker, even without any workout data feedback, has an effect on workout perceptions, but has little effect on mood.

1. Introduction

Exercise is a very important part of health and well-being, which allows people to feel content and balanced in life [1]. Exercise is defined as an activity requiring some form of physical effort that is carried out to sustain or improve health and fitness [2]. There are many benefits from exercising on a regular basis [3], such as weight control, strengthening bones and muscles, reducing risk of heart disease and certain cancers, managing blood sugar, and

improving mental health and mood [4,5]. There has been an increase in the use of personal exercise trackers to monitor physical health in the past several years. While research has shown that wearing exercise trackers increases physical activity [6], there is less known about the expectations of exercise trackers on mood and perceived workout intensity. This current study investigates how the assumed presence of a Fitbit while exercising impacts college students' exercise perceptions and affect.

Exercise has been shown to help treat mental health

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issues, including mood and anxiety disorders [7,8]. In some cases, depression can be treated with a simple exercise plan that may be more efficient and is not associated with many of the negative side effects of medication [9]. For example, researchers [10] found benefits for treating major depressive disorder were best when an individual participated in physical activity for at least 20 minutes, three times a week. Focusing on ways to increase physical activity is very important today since growth in technology has resulted in the decline of physical activity due to modernization of transportation and less physical requirements of employment [10].

Exercise is an essential contributor to both physical and mental health and is a significant part of a person's overall lifestyle [11]. In one study, students from an undergraduate physical education course were asked to take a 20 minute walk. This short walk resulted in a significant change in the participants' moods in all dimensions of well-being [11]. Researchers [12] explained that exercise during adolescence has an effect on the happiness and mood in a person's life. Both research teams concluded that exercise during adolescence was a significant predictor of positive moods and overall happiness. The results from these studies should be considered an additional incentive for both adolescent and adult exercise [12]. Furthermore, a healthy and physically active lifestyle has also been associated with better academic performance among first year college students [13].

Exercisers have discovered that a key to modern physical health is the use of an exercise counting apparatus. The purpose of the exercise counting apparatus, or tracker, is to examine the relationship between physical medicine and the regulation of muscular activity performance. Exercise trackers today can measure heart rate, oxygen levels, distance covered, calories burned, and other useful health statistics. Physical medicine is defined as any alternative treatment to drug treatment or surgery that can benefit a person's health [14], such as exercises to strengthen muscles and joints related to dexterity, strength, and mobility. The exercise counting apparatus can be viewed as a therapeutic tool, which also makes it an effective alternative to therapy [15]. A modern example of this is the Fitbit. The Fitbit is a band worn around an individual's wrist and is described as a wireless sensor technology that has the potential to increase overall physical and mental health while inspiring users throughout the process. The Fitbit has many features including tracking steps, distance, calories burned, hourly activity, sleep monitoring plus many more functions that boost an individual's health. Many people around the world have used the Fitbit to change their life physically and mentally [16].

Research on the first Fitbit showed that participants were more engaged with their exercise activity when using the Fitbit tracker, which explained their increase in moderate to vigorous physical activity [17]. A positive association between self-monitoring and physical activity change was discovered. Participants experienced a higher level of physical activity while wearing the Fitbit compared to traditional methods because of baseline confidence level, meaning they went into exercising with more confidence than the group with no Fitbits or form of exercise tracking [17]. The current study will focus on expanding this literature by also experimentally examining the believed effect of using a Fitbit on mood, workout intensity, and workout satisfaction.

Exercisers in this previous study [17] experienced the sham effect. The sham effect is an intervention that seems to be a real medical treatment, but is not [14]. A Fitbit is similar to a sham effect in that it is a medical treatment that does not directly apply medicine, but instead applies the effect of physical medicine to help people feel healthier physically and mentally. An example of this effect is people working out for an hour and expecting to see immediate results, such as a change in their abs or improved muscle tone, or simply telling a group of workers with physically active jobs that their work is exercise, managed to improve their health. Exercise training provides a physical benefit, but part of the benefit comes from the belief that exercising is making you healthier, both mentally and physically. Past research has shown that participants can increase their self-perception as regular exercisers, and decrease physical effects, such as blood pressure [14,18].

There is a need for research specifically aimed at the role of the sham effect in exercise training. However, there has not been direct research on the sham effect in terms of a Fitbit and changes in perceptions of exercise and mood. The purpose of the current study is to examine the relationship between the Fitbit, exercise perceptions, and mood. Given the existing literature, the study hypotheses were that when participants were randomly assigned to believe they were using a Fitbit, participants would be more likely to perceive their workout to be more intense, more physically challenging, and more satisfying than participants not using a Fitbit. In addition, those who believed they were using a Fitbit were predicted to report increases in positive affect and decreases in negative affect compared to participants not assigned to using a Fitbit.

2. Method

2.1 Participants

This study included 120 college students who attended workout classes at the university's recreation center in the

southeastern United States. There were 118 women and 2 men who participated in the study. While there are more women than men who attend the university in general, the organized workout classes are almost exclusively attended by women. All of the 120 participants were chosen randomly from the six workout classes. These classes were offered at the university recreation center and were free for all students. The classes that were used in this study were spinning, Zumba, and total body sculpting. The spinning classes were offered Monday-Friday at lunchtime and at nighttime, Zumba was offered Monday-Thursday at nighttime, and total body sculpting was offered on Tuesday and Thursday nights. Participant ages ranged from 18 to 25 (M = 19.89, SD = 1.59). Forty-five participants identified as freshmen, 27 were sophomores, 23 were juniors, and 25 seniors. The study included 99 White/Caucasian participants and 21 Black/African American participants. Participation was voluntary, as these college students had already chosen to participate in the workout class. No students were excluded. All participants agreed to take part in the study and were treated in accordance to the American Psychological Association's ethical standards and guidelines[19].

2.2 Materials

Participants completed the Positive and Negative Affect Schedule (PANAS) [20] to measure their moods at the end of the workout session. For each item, participants were asked to indicate how they feel, on a 5-point scale, at the present moment. Some examples of the words on the PANAS [20] were upset, hostile, alert, ashamed, and inspired. The 5-point scale consisted of 1 = *very slightly or not at all*, 2 = *a little*, 3 = *moderately*, 4 = *quite a bit*, and 5 = *extremely*. In addition to the PANAS, other questions on the post-workout survey the researchers created specifically for this study included "How intense was your workout?", "How physically challenging was your workout?", and "How satisfied are you with your workout?" on a 10 point scale. Participants were also asked "Do you regularly wear an exercise tracker when you workout?" For the experimental group, participants were given a Fitbit flex band, with no actual tracker included, and were instructed to wear this while working out. Participants were not told this was a sham; they believed it was an actual exercise tracking device that would provide data for the researchers. A demographic survey included questions to measure participant year in school (freshman, sophomore, junior, or senior), age, and sex (male or female).

2.3 Procedure

The present study used an experimental design. Data were collected in the spring of the academic semester from Zumba, spinning, and body sculpting classes at the university fitness center. There were two Zumba classes, two spinning classes, and two body-sculpting classes. In one of the respective classes participants were given a sham exercise tracker, and in the other class they were not given an exercise tracker. The researcher read a verbal consent to the participants. In the class that required an exercise tracker, the researcher placed the sham Fitbit on participants' wrists, keeping hidden the fact that no sensor was included. After their workout, participants completed a post-workout survey along with a demographic survey. Upon completion, the researcher instructed participants to hand in their surveys to the researcher on the way out of class. For those who used an exercise tracker while working out, the experimenter removed the tracker on their way out of class. No participants questioned the fact that the sensor was missing from the Fitbit band and no participants wore their own exercise tracker during the study. Data was collected in a workout room setting and completed surveys were collected individually from each participant. The post-workout survey took approximately 10 minutes for participants to complete. There was a debriefing statement at the bottom of the survey which thanked participants for their participation and explained the purpose of the study.

3. Results

Survey questions were averaged across groups for the questions related to workout intensity, how physically challenging the workout was, and how satisfied the participant was with the workout. Positive and negative affect scores were calculated from the PANAS [20]. Separate 2 (Sham Fitbit: present or absent) X 3 (Exercise class: Zumba, spinning, or body sculpting) factorial analysis of variance (ANOVA) tests were conducted to analyze the dependent variables of positive affect, negative affect, and responses to the workout. A $p < .05$ was used to determine statistical significance.

For the dependent variable of positive affect, there was not a significant main effect for the sham Fitbit, $F(1,118)$ = 1.69, $p = .20$. The participants who wore the sham Fitbit ($M = 4.26$, $SD = .82$) reported slightly higher positive affect ratings than the participants who did not wear the Fitbit ($M = 4.08$, $SD = .64$). The main effect for exercise class was not significant, $F(2,118) = .25$, $p = .78$. The positive affect responses for students exercising by Zumba ($M = 4.21$, $SD = .71$), spinning ($M = 4.20$, $SD = .81$), and body sculpting ($M = 4.10$, $SD = .71$) were all similar. The interaction effect was also not statistically significant, $F(2, 118) = .45$, $p = .64$.

For the dependent variable of negative affect, there was not a significant main effect for the sham Fitbit, $F(1,118) = 2.40$, $p = .12$. The participants who wore the sham Fitbit ($M = 1.07$, $SD = .22$) reported slightly lower negative affect ratings than the participants who did not wear the Fitbit ($M = 1.15$, $SD = .31$). The main effect for exercise class was not significant, $F(2, 118) = .30$, $p = .74$. The negative affect responses of students exercising by Zumba ($M = 1.13$, $SD = .36$), spinning ($M = 1.12$, $SD = .23$), and body sculpting ($M = 1.09$, $SD = .20$) were all similar. The interaction effect was also not statistically significant, $F(2,118) = .77$, $p = .47$. See Figure 1 for results for positive and negative affect by sham Fitbit condition.
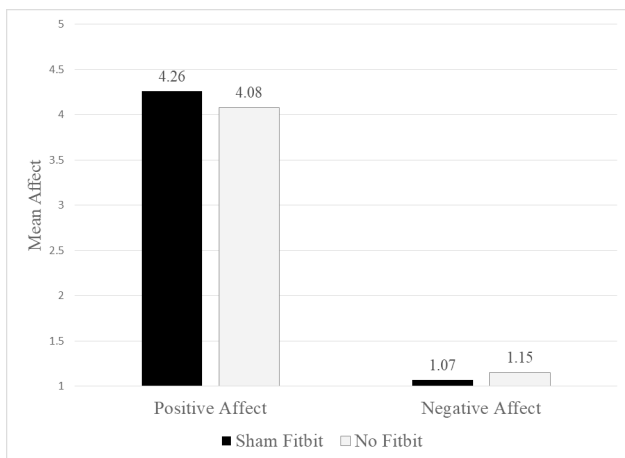
Figure 1. Mean positive and negative affect by sham Fitbit condition

For the dependent variable of workout intensity, there was a significant main effect for the sham Fitbit, $F(1, 118) = 7.57$, $p < .001$. The participants who wore the sham Fitbit ($M = 8.23$, $SD = 1.21$) reported a higher workout intensity than the participants who did not wear the Fitbit ($M = 7.65$, $SD = 1.23$). The main effect for exercise class was significant, $F(2, 118) = 8.35$, $p < .001$. The workout intensity ratings of students exercising by Zumba ($M = 7.58$, $SD = 1.12$), spinning ($M = 8.55$, $SD = .99$), and body sculpting ($M = 7.70$, $SD = 1.42$) were all different, with spinning rated as more intense than the other exercise options. The interaction effect was not statistically significant $F(2, 118) = .08$, $p = .92$.

For the dependent variable of how physically challenging the participant's thought the workout was, there was a significant main effect for the sham Fitbit, $F(1, 118) = 9.11$, $p < .001$. The participants who wore the sham Fitbit ($M = 8.15$, $SD = 1.80$) reported higher physically challenging workout perception scores than the participants who did not wear the Fitbit ($M = 7.30$, $SD = 1.60$). The main effect for exercise class was significant, $F(2,118) = 14.78$, $p < .001$. The perceptions of how physically challenging the

workout was different for students exercising by Zumba ($M = 6.80$, $SD = 2.08$), spinning ($M = 8.67$, $SD = .1.02$), and body sculpting ($M = 7.70$, $SD = 1.47$). The interaction effect was not statistically significant, $F(2, 118) = .14$, $p = .87$.

For the dependent variable of workout satisfaction, there was a significant main effect for the sham Fitbit, $F(1, 118) = 4.69$, p $= .03$. The participants who wore the sham Fitbit ($M = 9.05$, $SD = 1.31$) reported higher satisfaction with the workout scores than the participants who did not wear the Fitbit ($M = 8.52$, $SD = 1.38$). The main effect for exercise class was not significant, $F(2,118) = 1.65$, $p = .20$. The perceptions of workout satisfaction for students exercising by Zumba ($M = 8.48$, $SD = 1.55$), spinning ($M = 9.00$, $SD = 1.26$), and body sculpting ($M = 8.88$, $SD = 1.24$) were all similar. The interaction effect was not significant, $F(2, 118) = .14$, $p = .87$. See Figure 2 for results for workout intensity, physical challenge, and satisfaction.
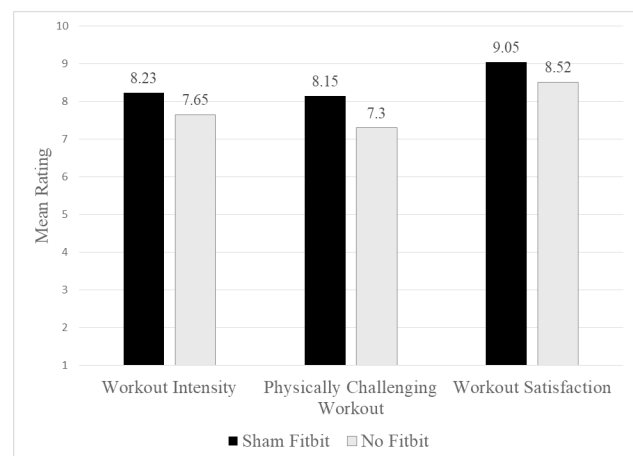
Figure 2. Mean workout rating by sham Fitbit condition

4. Discussion

The present study predicted that working out with a sham Fitbit would make a person perceive the exercise to be more intense, physically challenging, and satisfying than those who did not wear a Fitbit. These hypotheses were all supported. Participants wearing the sham Fitbit felt that the exercise was more intense, they were more physically challenged, and they felt more satisfied with the workout. The hypothesis that wearing a Fitbit during exercise would increase positive affect and reduce negative affect was not supported. Although positive affect did increase and negative affect did decrease in the sham Fitbit condition compared to the no Fitbit condition, these differences were not statistically significant.

The results of the current study are important because

they demonstrate that perceptions of workouts can be changed just by believing your exercise performance is being monitored. One of the strengths of the current study was that exercise classes were standardized and took place in the same room at around the same time of day, so the participants in both experimental groups shared a similar environment, which consequently avoided a potential confound. The simplicity and short duration of the survey (typically 5-10 minutes) was also a strength of this study. The participants volunteered for these workout classes and there were no incentives. This is a strength because external rewards can diminish intrinsic enjoyment [21]. Based on these findings, exercisers should consider investing in technology to monitor their exercise so they can achieve their physical and psychological goals. While affect was not significantly different between groups, there are many explanations why mood did not differ between groups. Additionally, there are some important factors which limit the generalization of these results.

Although none of the participants indicated they suspected the sensor in the sham Fitbit was not authentic, participants may have known it was not a real Fitbit. Also, although none of the participants used their individually owned exercise tracker during the study, 48 out of the 120 participants (40%) indicated that they regularly do use an exercise tracker during workouts. This could have potentially influenced the results of this study. If some of the participants are used to wearing an exercise tracker, and generally always wear one when they workout, then their mood levels may have been different than those participants who never wear one. Future studies can be used to target participants who do not have past experience with exercise trackers, such as Fitbits. This could prevent this confound from occurring and could possibly yield significant results with respect to changes in affect.

The current study used a convenience sample. The sample was limited to university students in the United States, almost exclusively women, so future research could focus on better generalizing to the population by sampling more men and students from multiple universities. This future research could potentially provide more ethnic diversity and a broader range of exercise classes offered. More comparative research can be done when a more diverse population is available. In the current study, spinning was rated as more intense and physically challenging than Zumba or body sculpting. This was a surprising finding, although the difference did not lead to any interactions with sham Fitbit presence.

Another limitation of this study was participant mood was only measured after the workout was completed. Participants could have completed the PANAS [20] before and after the workout to compare changes, although the study would have taken more time, and this repeated measure may have given away the true purpose of the study. Using the long form PANAS [22] would cover more mood terms, and adding additional questions about stress and mental health to a survey may lead to a better understanding of who the exerciser is and what they are dealing with in their lives [4,7-9]. Participants may also exercise often, and taking a class such as Zumba, body sculpting, or spinning, was not going to affect their mood because it was such a common experience.

Another limitation was the use of empty Fitbits, which was used as a sham effect. Using real Fitbits or other exercise trackers could be used to provide accurate feedback from the workout classes. Having the available information of workout performance would allow researchers to see the real performance of participants instead of relying on self-report perceptions. In addition, if participants were provided with their actual workout data they may have reported altered mood and workout perceptions based on expectations. Additional studies could also be conducted by focusing on athletes instead of casual college exercisers and investigating where the exercise was completed. Research has compared indoor and outdoor exercise sessions and found outdoor environments were perceived as more calming, making outside environments especially important to stress-reduction [23].

5. Conclusion

In conclusion, the results of this study suggest wearing a sham Fitbit can make people believe their exercise program was more intense, physically challenging, and satisfying. This is an important finding that can be used to help people increase their motivation for exercising, and these results may be especially important for people who are struggling with stress and mental health issues. Purchasing and using a Fitbit, or similar exercise tracking device, can increase satisfaction with workouts and thereby make people more likely to continue to exercise in the future.

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ARTICLE

The Impact of Pre-Marital Counseling and Psychological Variables on Marital Satisfaction Among Married Couples in Laterbiokoshie, Accra, Ghana

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ARTICLE INFO	ABSTRACT
	The study examined the effect of pre-marital counseling on marital satisfaction and the relationship of three psychological variables, intimacy, self-esteem and locus of control among married couples who received marital counseling and married couples who did not receive marital counseling. The study employed a cross-sectional survey. Standardized questionnaires were used to assess all variables of interest. Data entry, validation and analysis was done using the Statistical Product and Services Solution software (SPSS version 25). The total number of study participants were 720. The sample was predominantly female, 430 (60%) and Christian, 675 (94%). Study participants who were married by ordinance comprised 400 (56%) and most of them attended pre-marital counseling 470 (65%) for at least five months (Mean, S.D. = 5.54±3.44). The results showed that couples who attended pre-marital counseling before marriage were more significantly satisfied with their marriages than those who did not attend pre-marital counseling before marrying [t(718) = 2.050, p<.05]. Intimacy and self-esteem significantly influenced marital satisfaction among married couples who received pre-marital counseling, whereas only intimacy had a significant influence among couples who did not receive pre-marital counseling. Pre-marital counseling should be encouraged in all counseling centers and churches.

1. Introduction

The main objective of the study was to explore the role of pre-marital counseling on marital satisfaction and the relationship of three psychological variables, intimacy, self-esteem and locus of control among married couples who received pre-marital counseling and married couples who did not receive pre-marital counseling in Laterbiokoshie, Accra.

Almost any variable that is related to human race, (psy-

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chological, physiological, socio-economical, etc.) either has a positive or negative impact on marital satisfaction, and an even more complex impact when there is a relationship among the variables [1-4]. These variables which may ultimately lead to the undesirable point of separation or divorce include personality, intimacy, demographic factors, socio-economic status and communication, gender, social support, infidelity, children, partner violence, religion, spirituality, sexual satisfaction among many others.

Divorce is perceived as something against societal norms as marriage is regarded as a lifelong institution [5]. But Kepler [6] reported that up to 40 - 50 percent of marriages could end in divorces even though most Americans wished they were in happy marriages. In Botwana, Mbulawa (2012 as cited in Lopang[5]) reported that divorce cases registered with Lobatse High Court rose steadily from three hundred and ninety-four (394) cases in 1994 to 1172 cases in 2010.

In Ghana, divorce is no exception to married couples and when that happens, it is done by the elders in the presence of witnesses from both families [7]. According to Onlinedivorce.com (2019 as cited by Oluwakemi[8]), Ghana has recorded about four thousand (4,000) divorces in 2019 alone, statistically representing about ten (10) percent divorce rate. Comparing this rate to previous years (6.2 and 3.4 percent for 1960 and 1998, respectively), the year (2019) has recorded the highest so far.

In Ghana, the effort put into studying role of pre-marital counseling on marital satisfaction is inadequate. Although pre-marital counseling is practiced in many parts of Ghana, its influence on intimacy, locus of control and self-esteem in relation to marital satisfaction is unknown. In connection with this, the current study seeks to investigate the role of pre-marital counseling on marital satisfaction and the relationship of three variables, intimacy, self-esteem and locus of control among married couples who received pre-marital counseling and married couples who did not receive pre-marital counseling.

Marital Satisfaction: Marital satisfaction denotes the measurement of individual perceptions regarding their marital relationships and a measure of excellence of their marriages. It is the most central subject in marital life, and can either lead to stability or failure of the relationship [9]. Groza [10] posit that it is a perceptual state that echoes the supposed remunerations and prices of marriage to an individual, and when the marriage puts more cost on one partner, the more unsatisfied that partner becomes. Similarly, when the observed remunerations are high, the more content one becomes with both the marriage and the partner. Odero [11] in other terms, referred to it as a sense of gratification experienced by couples throughout their

marriage. Marital satisfaction is usually characterized by "strong free-flowing communication abilities and visibly deep satisfaction as per affection, sexuality, shared time and finances" [12].

Although marital satisfaction is the most significant indicator of success in marriage, the dream of having a smooth marital journey associated with all the love and romance does not always play out as expected, as some married persons immediately start experiencing hitches within the very first years of marriage and their assessment of marital satisfaction indicates a decline [9].

Pre-marital Counseling: To attain marriage satisfaction among couples studies have shown that pre-marital counseling has a role to play in the union [6,13,14]. Pre-marital counseling is defined as a technique or a learning package that seeks to prepare couples with facts on how they could improve their bond once they are legally married [5]. Similarly, Kepler [6] defines it as a "method that is intended to improve and enhance pre-marital relationships leading to more pleasing and established marriages" with the aim of avoiding divorce. These definitions suggest that pre-marital counseling is teaching the would-be couples practical ways of perceiving problems that may arise in marriage and practical ways of dealing with them to limit conflicts [11]. Ansah - Hughes [15] also asserts that pre-marital counselling is a therapeutic intervention that would-be couples undertake and Senediak [16] expatiated that it is a set of skills' trainings that seeks to inform these couples on more ideal ways of addressing issues that might arise when they get married. McGrath [17] asserts that since marriage has been ordained and blessed by God and is intended to form the building blocks of a strong society; pre-marital counselling is a good way to start.

Pre-marital counselling has been in existence since the 1930's with the first program being established at Merrill-Palmer Institute in 1932 [6]. A comprehensive program was developed later in 1941 by the Philadelphia Marriage Council to enable couples understand what is entailed in a marriage relationship and how they can best avoid some basic marital distresses [6].

Nowadays, pre-marital counselling programs for would-be couples are being offered through a number of modalities including workshops, conferences, couple counselling, individual counselling, courses offered in schools, online, books amongst others [6]. However, Murray [18] and Gichinga [19] have observed that pre-marital counselling of would-be couples is predominantly provided by the clergy although not all members within the clergy have been professionally trained as counsellors.

Ansah- Hughes [15] categorizes topics taught during counselling under three main subjects namely: toxic sub-

jects, conflict resolution and communication. Toxic subjects include finances, sex, in-laws, child-rearing, roles of each person within the marriage and religious or spiritual leadership; for conflict resolution - stonewalling (withdrawal), defensiveness, criticism and contempt; and all aspects of communication are discussed. Murray [18] posits that common topics addressed during pre-marital counselling include careers, finances, parenting and children, friendship and support, family of origin issues, religion, attitudes and beliefs toward marriage, gender role expectations, values, personality characteristics, adjusting from single to married life, commitment to marriage, conflict resolution skills, communication skills, emotional management, problem solving, coping skills, emotional management, essence of spending time together as a couple, romance, sexual relationship, and fun and leisure.

Succinctly, would-be couples are offered counseling through a number of counseling sessions to help them transition from their single into married lives; encourage intimacy between couples; develop their communication skills; encourage companionship among them whiles simultaneously imbibing in them problem-solving and decision-making skills in relation to their finances and other marital responsibilities [6]. To add to the list, Newman [20] takes pre-marital counselling from the spiritual angle. The researcher is of the view that couple's spiritual practices as well as men and women's need and how they can be met must also be discussed during pre-marital counselling. According to Kepler [6], many modern forms of pre-marital counselling exist including Community Marriage Policy (CMP), Prevention and Relationship Enhancement Program (PREP), Pre-marital Assessment Program (PAP), Pre-marital Communication Inventory, (PCI), Pre-marital Personal and Relationship Evaluation (PPRE) and (Save Your Marriage Before It Starts (SYMBIS).

In line with establishing a positive relationship between pre-marital counselling and relationship satisfaction, Yilzmaz & Kalkan [21] in a study among couples in Ondokuz Mayis University reported that there was a significant difference between scores recorded for couples who had been subjected to the counselling session as against those who were not. This implied that pre-marital relationship enrichment program enhances relationship satisfaction levels significantly.

Additionally, Nsanga [22] assessed the existing pre-marital counselling programs offered at PCEA churches in Kiambu district and the findings depicted the fact that most couples (ninety (90) percent) were of the view that pre-marital sessions were helpful. They were of the view that most helpful topics treated during the session such as sexuality, communication, finances and their roles and responsibilities gave them insights into their marital lives. These insights are believed to help these couples adequately manage issues related to these topics that might arise in their marriages, ultimately leading to marital satisfaction.

Egbo [23] undertook a study to determine the relationship between pre-marital counselling and stability in marriage. Findings from the study showed that pre-marital counselling had a significant influence on marital stability. This implied that couples who underwent pre-marital counselling had a more stable marriage which is more peaceful and devoid of conflict than their counterparts who did not.

A study conducted by Ansah - Hughes [15] involved married people in Techiman, Ghana. The study sought to find out couples' general perceptions about pre-marital counselling; and what those who went through it perceived about it.

From the research findings, it was concluded that most of the couples perceived pre-marital counselling as necessary and should be continued; be made compulsory in all churches; should begin as soon as the man and woman in question would want to get married; and that counselling helped couples to know what makes marriage and the possible differences they are likely to face between themselves. Additionally, couples perceived pre-marital counselling brings out issues would-be couples could be facing but that had not been brought to the fore; it provides an opportunity for couples to discuss each person's responsibilities in the marriage. Even though the study brought out couples' positive perceptions about pre-marital counselling, it did not address the impact that pre-marital counselling had on their marriages unlike the study by Kepler [6] so, it is only implied that those who received counselling were more satisfied in their marriages than their cohorts who did not receive any counselling prior to their marriage.

A cross-sectional study was conducted by Kepler [6] to determine if couples who went in for pre-marital counselling were more satisfied in their marriages. The report implied that married persons who received pre-marital counseling rated their marital satisfaction higher than their counterparts who did not go through pre-marital counseling

To confirm the earlier studies by Kepler [6] and others in a more recent study, Odero [11] aimed at studying pre-marital counseling and its influence on marital quality within the Seventh Day Adventist Churches, Kibera District in Nairobi County, Kenya. The results of the study showed that a greater number of the sample who attended pre-marital counseling rated their marital satisfaction higher than

their counterparts who did not receive any pre-marital counseling. Odero's [11] study was more comprehensive than that undertaken by Ansah-Hughes [15]. Whereas Ansah-Hughes [15] only brought out participants' perception about pre-marital counselling, Odero [11] not only finds out how satisfied they are being counselled before marriage but actually goes further to find out exact areas that participants thought the counselling sessions had helped.

Intimacy and marital satisfaction: One of the factors affecting marital satisfaction is intimacy [24]. Therefore, partner responsiveness in the intimacy process for married persons is very significant for the upkeep of a healthy union [25]. The role of intimacy in marriage has been given attention in different marriages which also gives a lead as to its significance [24,26]. Intimacy is a process in which individuals try to get close to one another and discover similarities and differences in their emotions, thoughts, and behavior [27]. Intimacy is the capability to communicate with others while you maintain your individuality; this implies that as a person one must reach a point of individual growth where one can establish communication with others [24]. Intimacy has been linked with variances in marital satisfaction owing to the fact that, it is the start point in initiating almost any process in the marital relationship [24].

Locus of control and marital satisfaction: Contemporary studies of the locus of control literature showed an increasing number of studies on the relationship between the type of control (internal and external) in marriage [28,29]. According to Kahler [30], locus of control as assessed in middle adulthood predicted marital satisfaction assessed contemporaneously. However, before this, Sheth [31] asserted in his work that external locus of control was linked with higher marital change compared to the people with internal locus of control. The work of Asgharianji [28] revealed a similar pattern of results indicating that there is a substantial interrelationship between internal locus of control and marital satisfaction.

Self-esteem and marital satisfaction: One of the important psychological factors that promote harmony in a marriage is the self-esteem of the partners involved which brings improvement in the social life [32]. In the domains of psychology, self-esteem is an individual's rating of his or her worth in life [12]. The marital union is governed by both social and psychological factors, and self-esteem is one of many psychological factors that have been investigated in association with marital satisfaction by several studies [33-37]. Self-esteem has gained attention because of its profound influence on marital satisfaction, with higher self-esteem having a positive correlation [35].

Hypotheses: it was hypothesized that:

(1) Ho: There is no significant difference in Marital Satisfaction between married couples who attended pre-marital counseling and married couples who did not attend pre-marital counseling

(2) HA: There is a significant difference in Marital Satisfaction between married couples who attended pre-marital counseling and married couples who did not attend pre-marital counseling.

(3) Ho: There is no significant relationship between intimacy, locus of control and self-esteem among married couples who received pre-marital counseling and married couples who did not receive pre-marital counseling.

(4) HA: There is a significant relationship between intimacy, locus of control and self-esteem among married couples who received pre-marital counseling and married couples who did not receive pre-marital counseling.

Limitations of the Study: The study adopted a cross-sectional survey design which precludes no conclusions regarding causality. The use of a non-probability-based sampling within the constraints of the COVID-19 pandemic limits generalization of the study beyond the sample. However, the study used an adequate sample size for the analysis proposed and findings can inform conceptualization of future research.

2. Materials and Methods

Study Design: The study employed a cross-sectional survey design with a quantitative approach to test the research hypotheses. A survey is able to study both large and small populations by selecting the study samples chosen from the populations in order to discover the interrelations of sociological and psychological variables [38]. This allows for inference as to what people may think or feel is responsible for a certain behavior.

Study area: The study was undertaken in Laterbiokoshie, a suburb under the Ablekuma South Constituency in the Greater Accra Region, Ghana. The population of this area was not particularly dominated by any group of people and can be described as cosmopolitan. The area was therefore suitable for the study. The choice of the area was influenced by proximity, and the mixed nature of the people in terms of different cultural and socio-economic background.

Study population: All married persons in the study area, married by any of the three main types of marriage recognized by the law in Ghana were invited to participate in the study. The three main types of marriage were Traditional/Customary, Marriage under Ordinance and Islamic/Mohammedan Marriage. Participants were required to still be in the union and not separated at the time of data col-

lection and they should have been married for six months or more which should afford enough time for a fair assessment of marital satisfaction. A participant who has been married for less than six months may still be reminiscing honeymoon moments. Separated and divorced persons may have answers that are skewed from the hurt they have felt and other issues that brought about the separation and divorce.

Persons aged 18 years or older were selected as this is the acceptable age of marriage. The study population also included individuals across different levels of education. Eligible persons who provided written and/or consent were included in the study. Participants who were unable to communicate in English, Ga or Twi, a commonly spoken dialect in the suburb were excluded, due to the language barrier which may affect the correct interpretation of constructs.

Sample size/Technique: An estimated sample size of 633 married persons was calculated for this study. The sample size was estimated using the Cochrane's formula: $n = \dfrac{z^2 Xpx(1-p)}{e}$, assuming 95% confidence level and assuming the prevalence of marital satisfaction to be 50% yielded a minimum sample size of 384. A non-response rate of 10% and design effect of 1.5 was allowed for resulting in a final sample size of 633. Purposive sampling technique was used to select the sample, however selecting the sample required that the geographical area should be divided into clusters to afford the researcher the opportunity to select equally from each cluster to avoid a skew. Purposive sampling is an attempt to select people who meet a certain pre-determined criterion [38].

Study instruments: Standardized questionnaires were used to assess all variables of interest. Marital satisfaction was measured using the Enrich Marital Satisfaction Scale (EMS), while the Rosenberg Self-Esteem Scale (RSE) was used to measure self-esteem. The Locus of control of behavior scale (LCB) was utilized on to measure locus of control, and intimacy was measured using the Intimacy Scale by Walker & Thompson [39].

Data collection: On the days of data collection, questionnaires were distributed to participants in their homes. Study participants were approached in their homes due to the ban on public gathering including churches, mosque and clubs by the Government of Ghana following the COVID-19 pandemic. Eligible persons responded to the questionnaire in a neutral area of their house that offered privacy to encourage honest responses. Social distancing was strictly observed. Research assistants were trained in the basic ethical and hygiene measures to minimize the risk of spread of COVID-19. Personal protective equipment such as face masks, sanitizers, disposable gloves and household wipe for surfaces were provided for all the research assistants and provision were made for research participants who did not have access to face masks during the study period. The research participants were requested to wash their hands and use sanitizer before and after the data collection process.

When consent was obtained from willing participants, questionnaires were administered. All questionnaires were collated daily by the researcher, scoring completed for each relevant section and coded for entry in an electronic database. The data were password protected with the password known only to the researcher.

Study Variables

Outcome variable: The outcome variable was marital satisfaction, which was measured using the ENRICH Marital Satisfaction (EMS) Scale.

Predictor variables: The variables investigated in this study were Locus of Control, Self-Esteem, and Intimacy. Locus of control was measured using the Locus of control behavior scale (LCB). Self-esteem was measured with the Rosenberg self-esteem scale (RSE). This involves a method of combined ratings. Intimacy was measured with the Intimacy Scale (IS; Walker & Thompson [39]) which is a 7-point Likert scale and a 12-Item Scale Adopted from Ansah-Huges [15] was used for Impact of Pre-marital counseling

Statistical analysis: Data entry, validation and analysis was done using the Statistical Product and Services Solution software (SPSS version 25). Three main analyses were conducted. Descriptive statistics were generated for sociodemographic characteristics of the study participants and presented in frequency distribution tables with corresponding percentages. Preliminary analysis was done to ensure that study variables were accurate in terms of reliability estimates, normality and homogeneity, prior to inferential analysis and partial correlation matrices were generated. Statistical significance was set at $p < 0.05$ for all analyses.

3. Result

The total number of research participants were 720. The number of female participants were 430 (60%) and Christian, 675 (94%). The modal age group for participants and spouses was 31-45 years 387(54%) and 400 (56%) respectively. Study participants who were married by ordinance were 400 (56%) and most of them attended pre-marital counseling 470 (65%) for at least five months mean = 5.54±3.44. One hundred and fifty study participants (21%) had the same ethnicity with their spouses. The mean years of marriage was 13.15±10.70 and the

mean number of children from the marriage was two children= 2.42±1.44).

3.1 Demographic Characteristics of Study Participants

Table 1. Distribution of Demographic Information on Participants

Variables	Statistics	
	Frequency	Percent
Gender		
Male	290	40
Female	430	60
Religion		
Christianity	675	94
Islam	44	6
African Traditional Religion	1	0
Age (years)		
30 or less	90	13
31 - 45	387	54
46 - 60	184	25
61 +	59	8
Mean (s.d.) 39.43±3.89		
Age of Spouse (years)		
30 or less	63	8
31 - 45	400	56
46 - 60	193	27
61 +	64	9
Mean (s.d.) 39.79 ±3.18		
Type of Marriage		
Ordinance	400	56
Islamic	45	6
Customary	275	38
Pre-marital Counseling		
Yes	470	65
No	250	35

Table 2. Mean, Standard Deviation, Skewness and Kurtosis of Major Study Variables

Variables	Data Normality Statistics			
	Mean	Std. Dev.	Skewness	Kurtosis
Intimacy (I)	99.40	21.73	-1.60	2.02
Self-esteem (ES)	23.03	2.66	-.281	1.37
Locus of Control (LoC)	43.90	9.09	1.27	2.15
Marital Satisfaction (MS)	50.10	7.02	1.03	1.78
Impact of Counseling (IC)	71.95	33.32	.77	-.86

Table 3. Correlation Matrix of Key Study Variables

Variables	Key Study Variables				
	1	2	3	4	5
Intimacy (I)	-	.004 ns	-.116**	.460**	-.090*
Self-esteem (ES)		-	-.176**	-.027 ns	-.131**
Locus of Control (LoC)			-	.041 ns	.060 ns
Marital Satisfaction (MS)				-	-.060 ns
Impact of Counseling (IC)					-

Note: ** = <.01, * = p<.05, ns= not significant, 1 = PSS, 2 = BCS, 3 = GHQ.

Hypothesis 1: Marital Satisfaction and Pre-marital Counseling

(1) Ho: There is no significant difference in Marital Satisfaction between married couples who attended pre-marital counseling and married couples who did not attend pre-marital counseling

(2) H_A: There is a significant difference in Marital Satisfaction between married couples who attended pre-marital counseling and married couples who did not attend pre-marital counseling.

The mean marital satisfaction score recorded by couples' who attended pre-marital counseling before marrying was 50.46 and that of their counterparts who did not attend pre-marital counseling was 49.33. Independent samples t test was conducted and results showed that couples who attended pre-marital counseling before marriage were more significantly satisfied with their marriages than those who did not attend pre-marital counseling before marrying [$t_{(718)}$ = 2.050, p<.05].This implied that the alternative hypothesis was supported.

Table 4. Independent Samples t-Test Analysis of Marital Satisfaction of Participants Categorized by Pre-marital Counseling Attendance

Predictor Variable (Pre-marital Counseling)	Marital Satisfaction Variable			
	$\dot{x}$	df	t	sig
Couples who had Pre-marital Counseling	50.46			
Couples who not have Pre-marital Counseling	49.33	673	2.050*	.025

Note: * = <.05.

Hypothesis 2: Intimacy, Locus of Control and Self-Esteem

(1) Ho: There is no significant relationship between intimacy, locus of control and self-esteem among married couples who received pre-marital counseling and married couples who did not receive pre-marital counseling.

(2) H_A: There is a significant relationship between intimacy, locus of control and self-esteem among married couples who received pre-marital counseling and married couples who did not receive pre-marital counseling.

3.2 Intimacy and Marital Satisfaction

The mean score for Intimacy was 99.40 ± 21.73, while the corresponding score for Marital Satisfaction was 50.10 ± 7.02. These means were subjected to bivariate analysis using partial correlation to control for demographic variables such as sex, gender, years of marriage and number of children. Results revealed a significant positive correlation between the two variables [$r_{(718)}$ = .460, p< .000]

Table 5. Partial Correlation between Intimacy and Marital Satisfaction

Predictor Variable	Marital Satisfaction Variable		
	df	r	sig
Intimacy	718	.460**	.000

Note: ** = <.01.

3.3 Locus of Control and Marital Satisfaction

The mean score for Locus of Control score was 43.90 ± 9.09 and the corresponding score for Marital Satisfaction was 50.10 ± 7.02. The mean scores were subjected to bivariate analysis using partial correlation to control for demographic variables. There was no significant correlation between the two variables $[r_{(718)} = .041, p > .05]$

Table 6. Partial Correlation between locus of Locus of Control and Marital Satisfaction

Predictor Variable	Marital Satisfaction Variable		
	df	r	sig
Locus of Control	718	.041ns	.270

Note: ns - not significant

3.4 Self-Esteem and Marital Satisfaction

The mean self-esteem score was 23.03 ± 2.66 and the corresponding score for marital satisfaction was 50.10 ± 7.02 were subjected to bivariate analysis using partial correlation. This yielded a negative correlation between the two variables $[r_{(718)} = -.027, p > .05]$

Table 6. Partial Correlation between Self-esteem and Marital Satisfaction

Predictor Variable	Marital Satisfaction Variable		
	df	r	sig
Self-esteem	718	-.027	.471

Note: ns - not significant

Intimacy predicted 50.5% variability in marital satisfaction among couples who received pre-marital counseling and 42.8% of variability among couples who did not receive pre-marital counseling. Self-esteem predicted 3.2% variability in marital satisfaction among couples who received pre-marital counseling and 1.9% of variability among couples who did not receive pre-marital counseling. Locus of Control predicted 18.9% of change in marital satisfaction among couples who received pre-marital counseling as compared to 1.9% of change in marital satisfaction among couples who did not receive pre-marital counseling. Intimacy and self-esteem significantly influenced marital satisfaction among married couples who received pre-marital counseling, whereas only intimacy had a significant influence among couples who did not receive

pre-marital counseling.

Table 7. Relationship between Intimacy, Self-esteem, Locus of Control and Marital Satisfaction among Couples

	Couples who Receive Pre-marital Counseling				Couples who did not Receive Pre-marital Counseling			
Variables	B	SEB	Beta	Sig	B	SEB	Beta	Sig
Constant	-	-	-	-	-	-	-	-
Intimacy	.146	.012	.505	.000	.158	.022	.428	.000
S. Esteem	-.067	.087	-.032	.443	.068	.211	.019	.747
LoC	.136	-.008	.189	000	.015	.049	.019	.754

Note: LoC - Locus of Control, S. Esteem - Self-esteem

4. Discussion

4.1 Pre-marital Counseling and Marital Satisfaction

This study showed that couples who attended pre-marital counseling before marriage were more satisfied with their marriages than those who did not attend pre-marital counseling before marrying. This study is consistent with the findings of a number of researchers. For instance, Yilzmaz [21] found a positive relationship between pre-marital counseling and marital satisfaction.

Pre-marital counseling is stated as a technique or a learning package that seeks to prepare couples with facts on how they could improve their bond once they are legally married.[5] Similarly, Kepler [6] defines it as a "method that is intended to improve and enhance pre-marital relationships leading to more pleasing and established marriages" with the aim of avoiding divorce. Ansah - Hughes [15] also asserts that pre-marital counselling is a therapeutic intervention that would-be couples undertake to prepare them for the marital journey. It is therefore not surprising this preparation contribute to marital satisfaction. This is because pre-marital counseling is believed to give insights to the to-be couples. These insights are believed to help these couples adequately manage issues related to problems that might arise in their marriages, ultimately leading to marital satisfaction.

4.2 Pre-marital Counseling and the Study Variables

The present study indicated a significant difference between married couples who received pre-marital counseling and married couples who did not receive pre-marital counseling. This finding is consistent with the findings of other researchers who observed pre-marital counseling as a main factor that improves the relationship between other factors and marital satisfaction.

One such finding is a study conducted by Ansah - Hughes [15] which involved married people in Techiman,

Ghana. The study sought to find out couples' general perceptions about pre-marital counselling; and what those who went through it perceived about it. From the research findings, it could be concluded that most of the couples perceived pre-marital counseling helped couples to know what makes marriage and the possible differences they are likely to face between themselves. Additionally, couples perceived pre-marital counselling brings out issues would-be couples could be facing but that had not been brought to the fore; it provides an opportunity for couples to discuss each person's responsibilities in the marriage. This is similar to the findings of Kepler [6] which showed couples who received counseling were more satisfied in their marriages than their cohorts who did not receive any counselling prior to their marriage. Similar to this is the findings of Odero's [11] who found out the exact areas that participants thought the counselling sessions had helped. It was revealed that pre-marital counseling improves marital quality and satisfaction of the couples.

One reason why pre-marital counseling improves the relation between all study variables and marital satisfaction is the fact that pre-marital counseling improves the quality of the marriage and that impact spills over onto the role other factors such as intimacy, locus of control and self-esteem play on marital satisfaction. This view was shared by Lopang[5] through their finding which indicated that most of the participants thought pre-marital counselling was critical in influencing marital stability.

5. Conclusion

The research findings also confirmed a significant positive relationship between pre-marital counseling and marital satisfaction [$t_{(718)} = 2.050$, $p < .05$] confirming that couples who attend pre-marital counseling before marriage are more satisfied with their marriages than those who did not attend pre-marital counseling before marrying.

Intimacy, self-esteem and locus of control had a stronger relationship on the outcome marital satisfaction among couples who received pre-marital counseling than couples who did not receive pre-marital counseling.

6. Recommendation

Counseling Centres and churches: Pre-marital counseling should be encouraged within appropriate and approved settings due to the significant influence demonstrated in this research. Both counseling centres and churches are major sources of pre-marital counseling. Future research could examine the impact of context of pre-marital counseling to further improve this service and enhance marital satisfaction.

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ARTICLE

The Relationship Between Job Burnout and Psychological Contract of Employee from the Perspective of Organizational Psychology

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ARTICLE INFO	ABSTRACT
	In a fast-paced career, employees are facing more and more pressure, and job burnout caused by long-term work pressure has become the main reason for many employees to leave. If the job burnout can't be effectively resolved, it will have a great impact on personal future development and the good running of the enterprise. Starting from the perspective of organizational psychology, this study investigates 200 employees on their psychological contracts and job burnouts to discover the relationship between them that people are most concerned about at the moment, so as to propose some reasonable suggestions to improve the employee job burnout and enhance the mutual identification between employee and the company. The research results show that job burnout and psychological contract show a critically negative correlation; the stronger the psychological contract, the lower the probability of employee job burnout. In addition, the establishment of a strong psychological contract between the company and the employee can effectively reduce the employee's job burnout, thereby ensuring the mutual benefit of the employee and the company.

1. Introduction

Since the 21st century, the development of economic globalization has become more and more mature, and the pressure and survival on all walks of life in the development is increasing [1]. Work pressure, life pressure, and family pressure will all affect us, resulting in job burnout. It will reduce the work enthusiasm, reduce work efficiency, and increase emotional ups and downs. Relevant literature studies have shown that employee burnout will affect personal physical and mental health, such as headache, anxiety, insomnia, and even depression [2]. For enterprises, it will cause higher turnover rate and brain drain, which will have a great impact on the development of the enterprise. According to *The Status Quo of Job Burnout among Chinese Workplace Workers in 2014*, job burnout is widespread in the workplace, and it points out that 74.3% of respondents with mild job burnout and 10.8% of respondents with severe job burnout [3]. Thus, it is clear that job burnout has become a "work sickness" that can't be ignored in the workplace. Therefore, how to better the job burnout of employees in the workplace has become a hot topic of concern.

Organizational psychology belongs to a branch of psychology, and it mainly focuses on the study of psy-

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chological phenomena and psychological relationships and laws within the company [4]. This research topic is to study the psychology and behavior of individuals in the company, such as the work motivation and work attitude of employees. Studies have shown that Western scholars combined with industrial company psychology for related research and analysis. The main research in this field is the impact between employee behavior and attitude and corporate social responsibility [5]. Based on the relationship between employees and the company, employees are considered important stakeholders of the company, and the study of corporate social responsibility from the perspective of employees based on different contexts is a new field and direction for micro-level corporate social responsibility research [6]. Many experts and scholars have combined organizational psychology and behavioral science to expand and develop the concepts put forward by predecessors, and interpret the relationship between employees and companys from the following three aspects: the company is the main body of corporate social responsibility; employees are important stakeholders of the company and the objects of corporate social responsibility (the company also has many stakeholders); and employees mainly experience the company's corporate social responsibility behavior towards employees through psychological perception and cognitive processing [7]. These employees are in different positions and have different work goals, but they all serve a company. Various employees have different psychology and behaviors. This is of great significance for studying the job burnout and psychological contract of different employees. It also has a great influence on the adjustment of the relationship among members in the company, between the superior and the subordinate, and between the individual and the company. Reasonable adjustment can effectively avoid job burnout of the members in the company, and enhance their contract spirit, thereby promoting good development of the company [8].

Job burnout originated in Western countries [9], and it was preliminary researched after 1970. Domestic research objects on job burnout are mainly focused on teachers, medical staff, and public security police. Research on corporate employees is relatively rare [10]. However, corporate employees are more unstable than teachers and medical staff, and their work content is more complicated, so they face more intense job burnout, with more obvious effect on the company [11]. Therefore, the study of job burnout has more extensive application value for enterprise employees. For employees facing job burnout, companys supporting employees

from multiple angles under this situation can play a role in alleviating employees' job burnout and stimulating their work enthusiasm to [12]. Related research shows that there is an unwritten and implicit mutual expectation and mutual understanding psychological contract relationship between companys and employees [13]. Based on the perspective of organizational psychology, the relationship between employee burnout and psychological contract is analyzed and studied in this article so as to provide reference for alleviating employee burnout and enhancing their psychological contract.

2. Methods

2.1 Research Methods

200 enterprise employees in xx city are surveyed, and the relationship between job burnout and psychological contract is discussed from the perspective of organizational psychology. The sample selection covers the service industry, manufacturing, retail, and finance.

After the questionnaire in this study is determined, they were distributed in September 2020. The questionnaires are collected online and offline. As of October 2020, a total of 200 questionnaires have been received, with 198 valid questionnaires, so the recovery rate is 99%.

The Chinese Msalach Burnout Inventory (CMBI) is adopted, which is revised by Li Yongxin et al. to meet the working conditions and characteristics of China [6]. The *Psychological Contract Questionnaire* designed by Li Yuan is adopted, which is applicable for the working background and characteristics of Chinese employees; it covers a total of 20 questions, including two parts: organizational responsibilities and employee responsibilities [7]. The SPSS1.0 statistical software is applied to analyze all recovered data. Specific statistical methods include the descriptive statistical analysis and reliability analysis [8].

2.2 Reasonability Analysis of Questionnaires

The job burnout scale used in this research is CMBI, which is developed from the most influential and dominant three-dimensional theoretical model of job burnout in this field. The model refers to the Maslaeh Burnout Inventory (MBI) proposed by famous psychologists Maslaeh and Jackson. The model believes that job burnout includes three dimensions: emotional exhaustion, dehumanization, and low sense of accomplishment [14]. Another representative theoretical model of job burnout theory is proposed by Pines et al. They believe that job burnout is manifested in three aspects: physical exhaustion, emotional exhaustion, and psychological exhaustion [15]. According to the

statistics of foreign scholars, more than 90% of the existing work burnout experimental studies are based on the MBI scale.

The psychological contract questionnaire widely used abroad is the *Psychological Contract Measurement Questionnaire* compiled by Millward & Hopkins [16]. Domestic scholars have also put forward a series of measurement questionnaires suitable for China's national conditions. The *psychological contract questionnaire* used in this research is the Psychological Contract Questionnaire adapted by Li Yuan. The empirical research in the questionnaire found that the psychological contract with Eastern social culture consists of normative responsibility, interpersonal responsibility and developmental responsibility, showing more complicated social interpersonal relationships.

The questionnaire survey method is adopted in this research to distribute the questionnaires to the people in xx city, aiming to investigate the age, gender, income, occupation, job burnout, and psychological contract of employees in the region. In addition, related software is applied to establish a database. SPSS20.0 software statistical analysis is adopted to analyze the factors affecting job burnout and psychological contract, so as to propose the improvement measures to the company. The questionnaire survey uses a stratified sampling method to stratify employees according to their working years. Then, simple random sampling or systematic sampling is carried out in each layer, and the sub-samples drawn from each layer are formed into the total research sample. Finally, the results are analyzed comprehensively.

The main framework of the questionnaire: the first part shows the analysis of the population (age, gender, income, education level, occupation, etc.); the second part is the analysis of the status quo of job burnout; and the third part is the analysis of the employee's psychological contract.

3. Results and Discussion

3.1 Descriptive Statistical Results

The relationship between the job burnout and psychological contract of employees is explored and discussed in this study from the perspective of organizational psychology. A total of 198 valid questionnaires are collected through online and offline questionnaires. The ratio of males to females is shown in the Figure 1 below. It illustrates that the male respondents account for 53.03%, and the female respondents account for 46.97%, so the gender of respondents has little effect on the survey results.
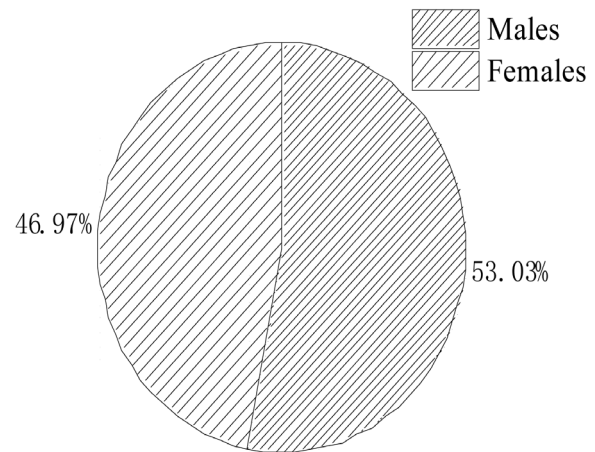
Figure 1. The ratio of males to females

The recovered data is sorted out and analyzed, and the statistical analysis results for the relationship between the job burnout and psychological contract the respondents are given as follows (Table 1).

Table 1. Descriptive statistical analysis on the job burnout and psychological contract

Scale		Average value		Statistical value of standard deviation
		Statistical value	Standard deviation	
Job burnout	Depression	3.172	0.039	1.211
	Perfunctoriness	2.986	0.032	1.092
	Low personal value	3.542	0.072	1.324
Psychological contract (company)	Normative	3.225	0.045	0.821
	Developmental	3.097	0.049	0.878
	Interpersonal	3.159	0.042	0.994
Psychological contract (employee)	Normative	3.972	0.019	0.423
	Developmental	4.315	0.022	0.519
	Interpersonal	4.126	0.025	0.507

The above table 1 indicates that low personal value in job burnout accounts for a larger proportion, followed by depression and then perfunctoriness. This shows that in the company, employees should be given more encouragement and support, which can effectively reduce the employee depression.

Comparison on psychological contract of the company and employees reveals the responsibility under psychological contract of employee is higher than that of the company, indicating that employees have a deeper understanding of the company, can abide by organizational rules and regulations, and pay more attention to

their development in the company; on the other hand, the responsibility under psychological contract of the company is relatively weak, so it has to improve the responsibility of company.

3.2 Credibility analysis of the scales

Table 2. Credibility analysis on psychological contract and job burnout of the employee

Variable		Item	Cronbach's coefficient	Total credibility
Psychological contract (employee)	Normative	8	0.873	0.952
	Developmental	5	0.895	
	Interpersonal	6	0.899	
Job burnout	Depression	7	0.968	0.786
	Perfunctoriness	5	0.939	
	Low personal value	7	0.901	

Table 2 shows that the normative, developmental, and interpersonal coefficient under psychological contract if employee are 0.873, 0.895, and 0.899, respectively, and the total credibility is 0.952. In addition, the total credibility of the job burnout coefficient is 0.786, which is above the standard of 0.7. Thus, comprehensively speaking, the results of the scale can be used in this study.

3.3 Analysis on Difference between Job Burnout and Psychological Contract of Employee's Personal Characteristics

In order to explore the impacts of different age groups, genders, and income levels on the job burnout and psychological contract, the analysis of variance is adopted.

Table 3. Analysis on difference between job burnout and psychological contract of employee's personal characteristics (sig < 0.05)

Personal characteristics	Job burnout			Psychological contract (employee)		
	Depression	Perfunctoriness	Low personal value	Normative	Developmental	Interpersonal
Gender	.312	.874	.032	.428	.852	.572
Education level	.290	.879	.587	.056	.076	.165
Age	.328	.319	.109	.897	.321	.674
Annual income	.021	.000	.005	.009	.015	.029
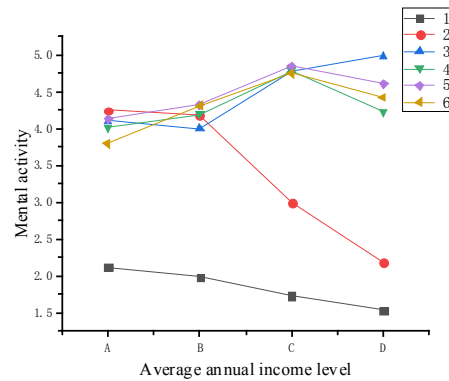
Figure 2. Average annual income of job burnout and psychological contract

Note: A, B, C, and D refer to the 30 ~ 50k, 50 ~ 100k, 100 ~ 150k, and above 150k, respectively (all in Yuan); 1, 2, 3, 4, 5, and 6 represent the perfunctoriness, depression, low personal value, normative, developmental, and interpersonal, respectively.

The above Table 3 and Figure 2 show that the differences in job burnout and psychological contract based on different genders, education levels, and age groups are not obvious. The difference in job burnout and psychological contract of employee is not obvious. The higher the employee's educational level, the stronger the psychological contract. However, the impacts of annual income level of these two indicators of the employee is more observable. The lower the employee's annual income level, the more depression, and the worse perfunctory attitude towards work. In the psychological contract, income level also affects the employee's sense of contract. The higher the salary, the stronger the employee's psychological contract, and the stricter behavior restriction.

4. Discussion

4.1 Current Status of Job Burnout and Psychological Contract of Employee

Based on the above results, employees in xx city still have high job burnout, especially depression and low personal value, which indicates that when employees face many complicated jobs in the company, depression is the main reason for job burnout. The low personal value means that employees do not play an important role in the company, which results in low sense of accomplishment and psychological burnout.

The data results reveal that the employees have a deeper understanding of psychological contracts, and the total credibility of psychological contract is above 0.9, which is higher than that of the company, indicating that employees pay more attention to development.

The impact of annual income level on job burnout and psychological contract is also more significant. Among

the respondents, depression and job perfunctoriness are more likely to occur in low-paid groups, suggesting that the income level affects the psychological changes of the employees in the company greatly. The higher the income level, the higher the enthusiasm of employees at work, and the stronger psychological contract facing the company. The education level of the surveyed object also affects the change of the psychological contract. The higher the education level of the employees, the higher the level of their psychological contract, suggesting that the company can increase training opportunities and improve the quality of employees so as to cultivate the employee's psychological contracts.

4.2 Relationship between Psychological Contract and Job Burnout of Employee

The research results show that there is a negative correlation between the job burnout and psychological contract of employee, which can be interpreted as that the stronger the employee's job burnout, the weaker its psychological contract. Psychological contract exerts an impact on the job burnout of employees. In the construction of psychological contract, if employees do not meet their own psychological expectations or have doubts about corporate regulations, they will form weaker psychological contracts. This shows that employees are more expected to realize their own value in the company, and hope that the company can provide employees with more high-quality and more challenging jobs, thereby reducing their job burnouts.

Based on the above, the company can also appropriately use the psychological contract to intervene in the employees in terms of adjusting the job burnout, thereby strengthening their senses of psychological contracts. In addition, it is also necessary to pay attention to the working status and interpersonal communication of employees in the company, and timely detection of problems can also reasonably prevent the occurrence of job burnout.

5. Management Insights

For a company, recruitment is the primary link to establish the image of the company in the minds of employees, and it is also the beginning of the establishment of a psychological contract between the company and employees. If the company's image is excessively beautified and unrealistic salary levels and benefits are given in the recruitment stage, it will lead to high psychological expectations of candidates. When an employee starts a job, the psychological contract established by the new employee will break and cause job burnout due to the large gap between reality and expectations, which will result in great losses for the company. Therefore, in the recruitment stage, false information should be eliminated and employees should be provided with realistic work expectations; the normative responsibility of an enterprise is the basis for providing employees with necessary material benefits and life security in the psychological contract. Companies need to establish a scientific and standardized management system and ensure fairness in the company's distribution procedures and results in order to achieve the employees' psychological contract. At the same time, they also need to establish a sound performance appraisal, salary, and welfare system so that employees' contributions and returns are proportional. In order to effectively alleviate the cynicism and low professional efficacy caused by the breakdown of company norms and responsibilities. Research shows that harmony among employees is the core and focus of an enterprise. Therefore, the establishment of a supportive corporate culture can enable employees to obtain the material and spiritual support needed to achieve their work goals and achieve their personal needs for social interaction, respect, and self-realization.

For individuals in the company, employees need to learn to self-regulate and cultivate an optimistic attitude. Pressure can be found everywhere in modern society. Individuals should learn how to cope with pressure and adapt to the environment. When facing the job burnout, they should remain calm and communicate with colleagues and bosses in time, so as to avoid going to extremes. When there are people with a higher sense of burnout, employee can care for and support others with a healthy and peaceful attitude, and help them to survive the impact of bad emotions. With the development of the discipline, various psychological counseling and professional counseling services are becoming more perfect, so professional help can be sought in time when the greater professional pressure and job burnout are found.

The innovation of this study lies in the research on the relationship between the psychological contract and job burnout of the employee based on the psychological perspective. At present, there are relatively few domestic researches on such topic, the system is not mature enough, and there are many things worth thinking about. The research and analysis of job burnout and psychological contract of employees in the workplace can provide in-depth understanding of the changes in the psychological conditions of employees, in addition to providing reference for the development and management of the company, it also can bring good management methods and development directions. However, the number of samples selected is too small in this study, so that the results may not be very

representative. In addition, the economic development of xx city is relatively slow, the job opportunity is few, and the income level is generally low, which may affect the result of job burnout.

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REVIEW

Pearls of Wisdom: Israeli Elderly Reflect on Their Lives, and Make Suggestions for Future Generations

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ARTICLE INFO

ABSTRACT

Reminiscing by older adults can facilitate beneficial outcomes through the preparation for the end of life, the cohesiveness of life narratives, and creation of life meanings. Given this, and the historical challenges of communication between generations, the objective of this study was two-fold: (1) to harness the beneficial role reminiscence can play in the mental health of older adults; (2) to facilitate generational learning by documenting and thematically analyzing the experiences and knowledge of older adults. We hypothesized that our interviews, which had the stated goal of helping younger people navigate life challenges, would not only act as catalyst for the participants to reminisce but also create a corpus of knowledge which could be later distilled into accessible "pearls of wisdom". The interviews were conducted in Israel with 102 participants who were between 60 and 93 years of age with six questions constructed to promote further commentary. Through the interviews we were successful in producing a large representation of the older adults' experiences and what they believed would be beneficial for the younger generation. Due to the potential benefits for participants and larger communities we recommend this approach be adopted for future studies.

1. Introduction

This research project was precipitated by two experiences:

(1) Interacting with older adults in community centers and housing for older adults, and noticing a prevalence of loneliness on the one hand, and their accumulated knowledge which they have very little opportunity to share with others, on the other.

(2) Teaching emerging adults in university [ages 18-26] and noticing how limited their knowledge and connection with older adults is.

According to Erikson [1] and Butler [2], reminiscence and life review naturally occurs as people get old. As death looms closer during the second half of a person's life, the review and attempt to understand the meaning of one's past life takes on an increasingly large part [3]. This may enhance ego-integrity if and when one can see his or her life as a harmonious whole which, can be interpreted as having been positive. Webster [4] found that reminiscence is more important for death acceptance in old age than in other periods of life. Whitbourne [5] observed that, during one's life, a person tends to periodically review their past and when doing so ranks and evaluates their experiences.

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These renewed constructions are influenced by external life conditions which are given to be affected by historical, cultural, social, and material circumstances, and by internal life conditions, which are the psychological and biological dimensions in addition to the person's expectations of the time left to live. Gerontological studies point out that psychologically healthy people achieve a positive life audit, meaning that they are cognizant of negative experiences that they underwent, but they do not evaluate them as predominant [3].

Reminiscence is the active or passive recalling of memories from the past, basically allowing one to review one's life [6-7]. Memories are an important source of identity and self-continuity, assisting in our ability to project ourselves into meaningful future events [8]. Significant therapeutic effects especially in reducing stress have been documented following reminiscence [9-10]. Re-examining of one's history, may result in new understanding, insight, or resolve unanswered questions that the person may have [6]. Chin [10], having conducted a meta-analysis aimed at evaluating the efficacy of reminiscence therapy, found that people reported greater increases in happiness and decreases in depressed mood when offered the opportunity to engage in it.

1.1 The Benefits of Reminiscing and Life Review

Research has demonstrated that in older adults, life review can enhance general wellbeing [9,11-12]. The positive effects range from increasing self-esteem [13], life satisfaction, and reducing loneliness, depression, dementia, and mental disorders in older adults, while facilitating social contact and fostering a sense of belonging [14-17].

By telling about their past events, wants, regrets, and achievements, older people can transmit their life experience and the lessons which they learned, to younger generations. Intergenerational reminiscence also offers the potential for reducing existing barriers between generations [18]. Life reviews which the elderly may do with youngsters, may help alleviate negative perceptions which the younger generation may hold of older adults, which in turn may negatively affect psychological and cognitive functions of older adults [19]. Further research found that positive intergenerational contact found that it can change or reduce stereotypes among older adults as well (Abrams et al., 2006 [20]). Intergenerational reminiscence can also provide an effective and rewarding activity that enhances positive forms of interaction between the older and younger generations [21-22].

Gaggioli [23] conducted a study on the effects of intergenerational reminiscence on elderly's psychosocial wellbeing, and found that such reminiscence contributes to decrease in participants' feelings of loneliness. While elderly participants perceived intergenerational reminiscence as a highly-involving and enjoyable activity. Reminiscence was related to personal wellbeing and self-realization (see also [24-25]. Life review has been shown to increase self-esteem, self-satisfaction, sense of meaning, and purpose in life among older adults [11]. As was mentioned above, it is intuitively apparent that reviewing positive life events would enhance one's self-understanding, self-esteem, and the feeling that one's life have been meaningful. But all of us make mistakes, by commission or by omission. What about regrets and how do they affect us?

It was suggested that the function of regret is to assist us to learn from our past mistakes. Regret should, thus, facilitate the identification and enactment of behaviors that will prevent one from making the same mistake again [26]. The term *regret* carries two different meanings. One when one feels sorry for [i.e. "When looking back on my past life, I regret that I did not complete university"], and the other is to lament or bemoan, as a way of describing feelings about given events or states [i.e. "I regret that my parents were not successful at convincing me not to get married to the one I did"] [27].

Regret seems to be followed by people's wish to change their lives or way of behaving in an attempt to correct the mistakes which they regret [28]. However, many important life decisions, for instance in the areas of education, family planning, and career planning, typically need to be decided and acted upon in specific life stages. Therefore, in many areas of life the opportunity for change has passed for older people. Since no change is possible in those areas for older adults, their way of dealing with regrets is externalizing responsibilities by attributing negative events to external forces [29]. Men and women handle regrets differently. Men are inclined toward acting, while women have a tendency to affiliate, as in the famous 'tend or befriend' [30].

1.2 What Do People Regret?

It is not surprising to find that most people wish they had done something differently in their lives, probably resulting in their regret of these decisions [31]. Decisions relating to not having completed one's education and having made poor career choices or relationship choices were the most common [32]. Interestingly, people tend to regret more actions, i.e. errors of commission, than inactions or errors of omission. That may suggest that people regret making mistakes more than they may regret missing opportunities [33]. Moreover, the extent to which the unwanted outcome perseverates in memory is a positive predictor of regret intensity [33-35]. Since older adults usually do not have,

by and large, an opportunity to correct mistakes that they regret from their past, they may experience "low closure", since no future behavior will be affected [36-37]. Importantly, low closure makes past experience feel psychologically unfinished and unresolved [34, 36], and is experienced as aversive [36].

1.3 About This Study

Clearly, most older adults enjoy talking about their lives and sharing their experiences with others. It is important that they feel free to discuss what they want and need to discuss, since older adults are not homogeneous, and not all will want to share the same kind of stories during life reviews. As was earlier mentioned, this study aimed at connecting the younger and the older generations, in a manner that would benefit all participants. Beyond the established benefits for older adults following life reviews guided by our questions, Scott and DeBrew [38] found that these benefits were sustained for both older adults who were interviewed and by the students [research assistants] who interviewed them. Ideas about older adults were changed following the contact and interview with them.

1.4 Method

1.4.1 Participants

Twenty-Two men and eighty women aged 60 to 93 (M= 76.5) participated in this project. They were gathered in snowball technique, where existing study participants recruit future participants, from community centers, public parks that older adults frequented, or their residences. Participants were read the informed consent but were not asked to sign it, due to their great concern of signing anything without a family member being present and wished to preserve their anonymity. The research was approved by the Institutional Review Board of the university to which the authors belong.

Interviewers-The participants were interviewed by a total of four female undergraduate psychology students in their beginning to mid-twenties. They were particularly chosen for this study since the goal was to have older adults transmit their life experiences to the younger generation, so on various occasions, it was as if grandparents were discussing their life experience with their grandchildren.

1.4.2 Procedure

The present research was carried out in Israel, and by asking of the participants several questions [outlined be-

low], was akin to reminiscing and oral history which was defined "as a method for assessing the stories and records that aid in the understanding of previous events in history as well as the feelings surrounding such events. Although oral history research utilizes less structured approaches than other methodologies (e.g., researchers are encouraged to follow cultural norms, practices, and intuition when conducting an interview rather than relying on standardized interview techniques), asking similar questions across participant interviews generates consistency.... The flexible style of oral history research offers advantages to participants, including greater openness story sharing and provides participants with greater control in setting the pace of the interview" [39].

Since older adults are a heterogenous group, and each has his or her own life experience, knowledge, and the way to relate it, we did not use any structured questionnaires or standardized measure to find out those 'pearls of wisdom' that we were after. Instead, research assistants met with older adults who volunteered, for a period that ranged from 30 to 45 or in some cases 60 minutes, and asked them six identical questions (along with some biographical questions regarding their age and marital status):

(1) What have you done in life that you are glad you did

(2) What have you done in life that you regret doing

(3) What have you not done in life that you are glad you did not do, and,

(4) What have you not done in life that you regret not doing

(5) What have you achieved in life and how did you manage those achievements?

(6) Are there any "pearls of wisdom" you would like to share, for the benefit of the younger generation?

The interviews were recorded, with the participant's permission, and later transcribed. Themes were, then, 'distilled' out of their life review and grouped into categories by the two authors.

1.4.3 Analysis

Thematic analysis, as described by Braun and Clarke [40] was utilized to analyze the data. "Thematic analysis is a method for identifying, analysing and reporting patterns (themes) within data. It minimally organizes and describes your data set in (rich) detail. However, frequently it goes further than this, and interprets various aspects of the research topic "(p. 79). The interviews that were recorded, were transcribed and then analyzed for embedded 'pearls' which we saw as wise reflections on one's life, and possibly suggestions for future generations of what to do and

what to refrain from in their lives. As suggested by Braun and Clarke [40], themes which captured an important issue related to the research question and represented some level of patterned response or meaning within the data set were identified. As the above authors observed, the two authors of the present paper, with the assistance of two research assistants, conferred, reviewed the data and decided what formed the various themes and how to name them. Inter rated reliability for finding 'pearls' and for categorization of themes was 95%.

A thematic analysis, observed Braun and Clarke [40], typically focuses exclusively on one level. Themes are identified within the surface meanings of the data, and researchers do not look for anything beyond what a participant has said or what has been written. It was opined that the analytic process involves a progression from description, where organization according to patterns in semantic content, are summarized and then interpreted, and an attempt to theorize the significance of the patterns and their broader meanings may follow. In contrast, a thematic analysis at the latent level goes beyond the semantic content of the data, and examines underlying ideas, assumptions, and conceptualizations that are theorized as shaping or informing the semantic content of the data.

1.5 Results

Theme #1: 'Need to study or learn a profession'-Preparing for the brightest future possible often included getting a university education, or a professional trade. Older adults Reflected on how life can be more difficult without building a solid foundation in which to grow from. Security, stability, and happiness were all present in the interviews as they encouraged younger people to prepare for the years ahead.

(1) *Perseverance and Hard Work*-Many participants shared their own career experiences as they associated long hours and hard work with success and fulfillment. Other concepts that were associated with this theme included the freedom to direct the course of one's life, how perseverance can reveal who you are to others, and how it can earn you the respect of others. Examples of these ideas in the interviews include. [Person #3, Female, 80]-"A person who wants to achieve something learns. If you do not want it, you won't learn anything and you will say 'I do not know' but when there is a desire, you will make an effort. You need a lot of patience ", [Person #10, Female, 80]-"I was walking on the street and saw a "seamstress needed" sign. I had to stand in front of the sign for an hour and decipher it, as I was yet unfamiliar with the Hebrew language. I told her that I'm a seamstress. She looked at me, I was a young girl, and told me to sit by the machine

and brought me some fabrics. She told me 'you are not a professional seamstress but you know how to do the job' and that's how I worked there ", [*Person #29, Female, 80]-"What made me insist on signing up to nursing school after two denials, was my friends and it was a big deal"*. [*Person #10, Female, 80]-"I went to the 'working youth' at the age of 14. I went to work in a chocolate factory. I worked there for four years, I always earned and had money and I was always looking my best."*

(2) *Working with Others*-Putting in the effort to succeed in team work. Being friendly, and navigating the relationships with superiors were all highlighted as important skills and attitudes to have to achieve success: [Person #10, Female, 80]-"I would come, sew a skirt and go as if I had developed this hobby, one day our neighbor was in the aisle and I would tell him let me sew and he was scared that I would ruin the machine and asked who will fix it? I told him not to worry, and he let me sew and then I turned the hobby into a profession."

(3) *Pride in Accomplishments*-The sense of personal worth that stems from participant's education and career accomplishments was apparent in the interviews. Feelings of appreciation and satisfaction were tied to the opportunities they had. It was common for them to fondly remember their work years. [Person #30, Female, 91]-"Knowing many languages helped promote my career options.", [Person #33, Female, 81]-"I learned a lot when we traveled abroad through my husband's job.", [Person #18, Female, 77]-" I studied for a medicine degree for 3 years at the University. That is, I not only implemented taking care of my children, I also implemented my principles, to maintain other things."

(4) *Education and Planning for the Future*-Education was seen not only as the best preparation for an ever more competitive labor landscape, but as an intrinsic good in its own right. Older adults recommended that school should be taken seriously, and that youngsters have a plan that fits the reality of the future labor market. Continuing education outsides of school was also suggested. [Person #24, Female, 93]-"In order to build a life, you must study", [Person #27, Male, 86]-"I told my children that they need to study what they love without worrying about what will happen later", [Person #35, Male, 81]-"If I had the chance, I would pursue academic studies even though I succeeded without it, it would have opened more doors for me. "

Theme #2: 'Marital Relationships'-Older adults spoke about the importance and centrality of marriage and of how important it is to chose the right person as a mate. There were numerous expressions of gratitude for their marriage, love for their partner, and what they accomplished together. On the other hand, some participates

retold their struggles of marriages gone bad, and some even regretted marrying in the first place. Advice on how to maintain a healthy marriage were also mentioned with emphasis on honestly, compatibility, intimacy, and working as a team.

(1) *Making a Commitment*-Older adults highlighted the commitment to another person and taking relationships seriously. This included: [Person #9, Female, 60]-"Regarding relationships-I married my ex-husband because I was afraid of not having security that I would find anyone. I knew it would be difficult with him and my thought was in my strength I would already fix my eyes, as if it would not happen to me or I would change the world. I was scared. I had some fear that I would be left without anyone, that I would not get married, as back in my time they used to get married at the age of 22 and at the age of 24", [Person #16, Female, 80]-"couples have no patience these days, How can it be that they separate so quickly? It's because they were too much around each other at first by living together and all that. If they had kept a little to themselves, to their dignity then there would have been a different value to the relationship", [Person #16, Female, 80]-" In my time, there was conservatism. People did not think of divorce, it is not easy especially If there are children. If you didn't have children, you could divorce and choose the guy for you. If he's not good to you, then do not go with him. If he raises a hand on you or is stingy do not continue with him. If you see that he is good, then go on! If he sometimes gets upset, its not so terrible. Then we become friends again and move on and in front of the children do not shout or argue.".

(2) *Pride in Marriage, Gratitude*-A successful marriage was a source of pride and gave some participants a sense of accomplishment. There was also a general sense of gratitude they expressed that they found the right partner. [Person #34, Male, 79]-" The right thing that I've done in my life was getting into a relationship for the second time with a financially stable woman, my life was so good with her. " [Person #24, Female, 93]-"I married early and gave birth because I wanted a home, I married to an educated family.".

(3) *Compatibility*-With the value older adults placed on the institution of marriage and the wide implications it has for the trajectory of a person's life it is unsurprising they highlighted compatibility and understanding as critical considerations for a life partner. Common interests, backgrounds, expectations, and spending habits were all seen as key commonalities to a successful marriage. [Person #23, Male, 83]-"There were no wars in my wife and my life. No crisis, tragedies, or happy occasions, it was mellow", [Person #23, Male, 83]-"Our marriage was calm

we didn't resist one another, and we didn't argue. We negotiated over things and we worked together for a calm marriage", [Person #34, Male 79]-"My advice is to find a partner that is not controlling and dominant but forgiving sometimes.".

(4) *Faithful*-Having remained faithful throughout a marriage was interpreted as a personal accomplishment and an avoidance of betrayal. [Person #27, Male, 86]-"My mother and my wife didn't get along so I had to choose, and as the Bible taught us "a man leaves his mother and father and sticks to his wife".

(5) *Caring, Respect, Intimacy*-Older adults discussed their respect for their partner and how it, and intimacy were central to a successful union. Demonstrations of love were also held as important expressions: [Person #22, Female, 86]-"My relationship with my last partner was beautiful. He was considerate of me and I was considerate of him", [Person #22, Female, 86]-"In a relationship it's important to say kind words to each other. There are people that don't know how to do that. Don't do everything on your own because then you'll get tossed when they see you as a server.", [Person #35, Male, 81]-"Good companionship between partners is kept by giving space 'to breath', understanding that each person has their own personality and letting them be, of course love as well.".

(6) *Communication, Navigating Differences and Difficulties*-The ingredients of a healthy marriage were discussed by the participants as they attempted to give actionable advice to younger generations. This included advice related to knowing one's self, open communication, and acceptance: [Person #25, Female, 77]-"For good communication, you should encourage the husband and take care of him.", [Person #28, Female, 78]-"I don't tend to argue although I am not lenient, I'll mention the subject later on but not by yelling and being angry at the moment which irritates the other side." [Person #28, Female, 78]-"Arguments and conflicts should be resolved not in the presence of the children.".

Theme #3: 'Shaping the future generation/raising kids'-Older adults, as could intuitively be expected, shared their accumulated knowledge and were mostly interested in making suggestions about what to do, and what not to do in relation to raising children. They offered various 'pearls' related to future generations, which gave a major role to parenting, the family, and to the set of values that were transmitted from one generation to the next. The theme 'Shaping the future generation/raising kids' was so well represented that we divided it into several subthemes, as follows:

(1) *Enhancing Family Bond*-highlighting the importance of the family, the support offered by its members,

and the guidance that the family group can provide about life's trials and tribulations. Examples of the 'pearls' that were included here are: [Person #11, age unknown, Female, -] - "I feel like I was wrong, that I did not give my children the right tools to live in brotherhood and peace. I learned that you should be forgiving with your children, teach them brotherhood, peace.".

(2) *Engaging in Direct Communication with Family Members*-This subtheme is related, yet distinct, from the one above. It hails the importance of actively attending to interfamilial communication and ensuring, as much as possible, that the lines of communication are open, available, and constructive. Examples of the 'pearls' that were included here are: [Person #33, Female, 81] "I didn't intervene in my son's relationship. I tried to tell him that after tragedies happen to people, they do something with themselves and do not fall into depression. ", [Person #24, Female, 93]-"Throughout my life my main goal was to listen to my children. ", [Person #28, Female, 78]-"I don't want to argue, only to live in peace with my daughters, even though I'm a mom I don't give out orders only advice.".

(3) *Expressing pride in family and children*-It is important that the family not only be a central part in one's support network, that values be transmitted to offspring, but that the family feels pride as a unit, and know that the parental system is proud of their children. Such knowledge can empower and strengthen them. Examples of the 'pearls' that were included here are: [Person #22, Female, 86]-"The way to a good family life at old age, is to bestow loyalty and reliability in the household, teach them to be caring and honest and do not lie to them.", [Person #25, Female, 77]-"I was not encouraged or believed in so because of that I had insecurities, that's why I encouraged my children.".

(4) *Encourage your kids to dream and achieve*-One of the important roles of parents, according to our sample, is to provide their offspring with goals to achieve, and with permission to dream about how they want their lives to be, and naturally, to do what they can to realize their dreams. Examples of the 'pearls' that were included here are: [Person #21, Female, 82]-"Its important to try and navigate the children by their skills and support them as much as possible", [Person #22, Female, 86]-"In order to be a significant part in the grandchildren's life, its important to be there for them when they are happy and when they are sad, feeling them mentally and physically",[Person #27, Male, 86]-"My boys thrived and succeeded thanks to us being able to go with whatever they did".

(5) *Forgive and aim to understand*-Once again, due to its importance, another subtheme emerged about the need, for parents, to model for their children how to be open to other's communication, endeavour to understand it, and when there is a need -know how to forgive. Examples of the 'pearls' that were included here are: [Person #22, Female, 86]-"As a kindergarten teacher, I realized that kids need more than a meaningless connection. Something that they can see and experience with their body. And that was my method. First, the kid receives understanding by the activities and information he's being taught. Later on, the kid acts, remembers and then then speaks "[Person #5, Male, 80] "I teach driving. This is a classic example-I teach driving, if I help them and do so wholeheartedly, and they get a license and enjoy it, I also enjoy it with them. I have been teaching for 50 years. Some students resist and are difficult. Having patience with them is the key. One should be patient and tolerate even those who do not cooperate and do not agree. There are a lot of disagreements with students".

Responsible Parenting-While some may think that a family is a collection of parents and children and that bringing children to the world and feeding them is its essence, our sample repeatedly highlighted that having a family included the responsibility of the parents not only in the present welfare of the family and the children, but also their future, and preparing them for life. Examples of the 'pearls' that were included here are: [Person #22, Female, 86]-"My advice to educators is "just listen to what the kids are talking about, and to what they are telling you". ", [Person #27, Male, 86]-"I think kids come to right decisions when they are let loose, not when pressured". [Person #2, Female, 78]-"I always tell my daughter to be good with poor children, whose life is harder for them and in general every child has to find a way to reach them", [Person #15, Female, 72]-"I did not dare to shout at my mother or my father, I did not like it, there is no such thing. A kid must accept and say thank you.".

(6) *Teaching Autonomy & Independence*-The importance of preparing one's children for the real world. Not only preaching autonomy, but practicing it with one's children. "[Person #11, Female, -]-"Let him live his life, so when he will feel he is mature he will go out and reach his wants, no need to rush", "[Person #11, age unknown, Female, -]-"I want him to reach maturity and then he will get married ".

(7) *Appreciating the way I modeled to my children*-Not only by preaching, but actually modeling for the children what are the right and valued behaviors. Examples of the 'pearls' that were included here are: [Person #21, Female, 82]-"Its important to teach the kids self-worth, making them feel loved, it has a big influence on decisions in their relationships when they are older", [Person #21, Female,

82]-"I always supported and was behind my children, my criticism I kept to myself. They got support out of awareness and acknowledgment of the way it should be" [Person #26, Female, 84]-"I let me kids talk, I would reply by stating my opinion, but I never forced it on them.".

Theme #4: 'Relationships With parents/with elderly'-The participants understood that in order to facilitate intergenerational learning a relationship between children, parents, and older adults was highly beneficial. The advice and commentary were again subdivided into several subthemes.

(1) *Communicating, learning from their wisdom*-Examples of the 'pearls' that were included here are: [Person #1, Female, 65]-"Knowing how to accept from others, from the adults, because it is certain that everyone, no matter in what field they may practice, each adult has something to contribute. From all my teachers I learned. Understand, accept, listen to them, because they have lots and lots of things even though it is not so appropriate sometimes.", [Person #3, Female, 80]- "I learned knitting from my mom, I would knit for my kids, a lot of things, like cooking and knitting, I learned from her.", [Person #8, age unknown, Female, -]-"We learned everything from our parents, mother was very smart and loved her children. Gave warmth and love and that's what we got.".

(2) *Respecting the older adults*-Pleas to respect and care for older adults were documented with concerns about health and isolation being at the forefront. Examples of the 'pearls' that were included here are: [Person #26, Female, 84]-"I always think of and help everyone" ,[Person #30, Female, 91]-"Teenagers these days are spoiled, they sit around with their phones and nothing interests them…even when they are being talked to; its not nice." ,[Person #11, Female, age unknown]-"If you don't think only about yourself and don't expect anything in return you can contribute to the community. As once upon a time, people lived in a tribe, not like today nursing homes, and so the community as a whole could support them. There was no such thing as a grandfather leaving the clan, the grandfather moving from house to house or living together".

(3) *Helping to care for parents*-Some of the interviews touched on caring for older adults as they begin to lose the capacity to care for themselves. This caring and concern were depicted as a way to repay them for all they have done for their children and it just being the virtuous thing to do. Examples of the 'pearls' that were included here are: [Person #32, Female, 84]-"My advice for the younger generation is to keep one another safe, and that also includes parents and siblings", [Person #10, Female, 80]-"I always had money hidden and I helped in my house

because I do not like to say that we are without.".

(4) *Express your love to the family*-Older adults encouraged younger people to initiate communication with older family members and to avoid being selfish with time. Examples of the 'pearls' that were included here are: [Person #25, Female, 77]-"You need to enjoy life and spend time with the family", [Person #29, Female, 80]-"A mother's heart is soft and kind, kids can sometimes be cruel to their parents, but when the kids become parents they change for the better".

Theme #5: 'Dealing with personal difficulties/insight on life and adapting'-Working with the assumptions that all people face challenges in their lives, we sought to document the related "pearls of wisdom" to these experiences as adaptive strategies. The ability to overcome trials is associated with a range of traits (eg. determination, conscientiousness) as well as applicable knowledge. [Person #11, Female, -]-"When you are able to forgive and are forgiven, not only does heavy weight fall off your shoulders, the door to your own love opens", [Person #14, Female, 90]-"In every family there is no black and white. There are ups and downs and this is life but thank God we try to overcome the obstacles and things that come our way", [Person #14, Female, 90]-0"If you do not deal with your difficulties, you end up going into black hole and it is difficult to come put of.".

(1) *Acquiring knowledge & learning from experiences*-captures the importance of learning from experiences and how that information can be effectively utilized for future challenges. Knowledge is seen as having intrinsic value for the individual and the wider community with a focus on learning from others. Examples of the 'pearls' that were included here are: [Person #20, Male, 80]-"From a very young age I started working alone for a living and financed myself. I had many friends in Iraq [where I am from] and that's mostly what strengthened me, I had fun with them", [Person #18, Female, 77]-"I'm a little desperate, I have no purpose. Every year I had a goal if it was to learn. Not just looking after the house, the floors, the cooking. That is, the soul must have a purpose. If it's a lecture or anything, it is very important. It gives the stability and patience in the family, to the husband and children.".

(2) *Determination and hard work in facing adversity*-the participants discussed how they were able to overcome challenges by remaining resolute in the face of adversity. The themes of hard work and working through difficulties were repeatedly mentioned as a universal solution to many problems. Examples of the 'pearls' that were included here are: [Person #21, Female, 82]- "I was always told that I am a strong woman even with the weak-

ness, anxiety and fears I was feeling.".

(3) *Avoiding trouble, being cautious and vigilant*-this theme contained references of not making life more difficult than it needs to be, understanding one's own limitations and being vigilant against temptations. The participants expressed the importance of caution, reserving judgement, and self-reflection. Examples of the 'pearls' that were included here are: [Person #21, Female, 82]-"Its important to try and figure out what's behind a devious stare or an unsupportive comment. When you find out the motive it prevents bitterness.", [Person #21, Female, 82]-"I don't go in acting arrogant in a new environment, only cautious and observative. My need of being around people is so strong, most of the time I'm the one reaching out to people. I know I can be intimidating sometimes so I pursue the relationship slowly.".

(4) *Seeking help, taking advice, accepting what cannot be changed*-it is a common experience to face difficulties and not know the best course of action. Our sample data highlights the importance of seeking help, admitting to what you do not know and the value of expertise. Some of these entries included here are: [Person #21, Female, 82]-"There are people that I have stopped being in contact with due to confrontations we had; however, while the years went by I found the strength to forgive and, out of understanding, I renewed the relationships not out of fear or weakness.".

(5) *Loneliness and the Importance of relationships*-loneliness has become a ubiquitous factor of modern life, because of that, it is unsurprising themes related to loneliness and closeness to others appeared in the corpus. The participants offered thoughts on their own experiences and how close relationships can help guard against its expression. Examples of the 'pearls' that were included here are: [Person #21, Female, 82]-"I have been feeling lonely all those years even though I wasn't physically alone. Loneliness was my friend",[Person #23, Male, 83]-"I felt lonely when my wife passed away",[Person #21, Female, 82]-"A woman that portrays a strong and stubborn front, and on the inside seems as though she is soft and searching for reinforcements from her environment, is one who feels like an outsider and loneliness that she spoke about.".

(6) *Avoiding or controlling vices*-the moral hazards that vices can present to people, are discussed in the sample data as the participants spoke of attempts to moderate behavior and look for ways to control unwanted impulses. Most of the contributions focused on avoidance, self-control, having a goal, and the damage that drugs and alcohol can have on a person and on society. Some of the entries included: [Person #11, Female, -]-"I continued because I really believed that it was hard to build and easy to destroy and I really did not want to destroy and I just faded. My life was not what I wanted it to be", [Person #11, age unknown, Female,]-"I'm sorry I do not have time to go visit my mother, that I know how important it is for her that I visit. Sorry I choose to go home, sleep and not go to her".

(7) *Allow yourself to be who you are!*- the importance of having confidence and allowing yourself to be who you are, especially in front of others, is seen as a path towards self-fulfillment. Since it is difficult to obtain a measure of happiness if you are pursuing the goals that society, or family, has laid out instead of your own interests it is necessary for a person to establish what they want and the self-confidence to pursue it. Examples of the 'pearls' that were included here are: [Person #28, Female, 78]-"Each person can think as they please and feel as they please", [Person #29, Female, 80]-"I accept everything as it is, and I don't try to change what is unchangeable",[Person #21, Female, 82]-"Expressing yourself is very important, it is what makes her unique and what characterizes her choices".

(8) *Be the best you, and see the best in others*-Striving to be the best version of ourselves often includes the ability to see the best in others. Either in being inspired by others' example or having the compassion and optimism to see the best in other people. Older adults spoke to these themes by encouraging people to be morally upstanding, take responsibility for their actions and love their fellow humans. Examples of the 'pearls' that were included here are: [Person #21, Female, 82]-"Demanding from others less than from myself in every aspect", [Person #27, Male, 86]-"You must try to live life to the fullest…do the things you love... the mental ability goes down through the years", [Person #35, Male, 81]-"A good manager is born with those skills, but he needs to also have an impulse for it constantly.".

(9) *Finding comfort in faith*-For many people their faith is a source of strength, providing them with guiding principals as well as a stable community. Examples of the 'pearls' that were included here are: [Person #3, Female, 80]-"How do you deal with the loss of your son and husband? You just deal with it you have no choice. What can I do? If I go to every house to cry for them no one will accept me later. Thank God I'm getting along and that's all, but I say thank God I also have this one son I have left.".

(10) *Appreciation, optimism, focusing on the good in life*-in light of all the challenges people face it is important to remain optimistic and not be pulled down into negative and despairing thoughts. Examples of the 'pearls' that were included here are: [Person #28, Female, 78]-"The

most important thing in life is to love and smile all the time", [Person #28, Female, 78]-"Life prepares for us ups and downs and terrible hassles, but generally life is beautiful and all that matters is how you perceive it", [Person #31, Female, 81]-"I smile a lot and its important for me to be a strong rock for my environment".

(11) *Self-reliance, resilience*-there were many references to overcoming challenges when a person has no one else to rely on. It is in those times the participants highlighted the importance of conjuring up the internal strength to preserve. This subtheme included enduring some psychological pain, but also in having conviction that there is light at the end of the tunnel. Examples of the 'pearls' that were included here are: [Person #6, Female, 80]-"What kept me from dealing with the difficulties was thinking for the good of my children - to have a roof over their heads, to have good children and to be honest and know how to cope. Today its the same. If I'm feeling bad and nobody knows, I deal with it alone."

(12) *Healthy Living and dealing with Challenges*-medical problems can affect people of any age but are of particular concern for older adults. Concerns for the ill, the need for compassion, living a healthy lifestyle and an emphasis on the role psychological strength plays were all present. This theme was unsurprisingly well represented in the interviews with the following as some examples: Examples of the 'pearls' that were included here are: [Person #22, Female, 86]-"The most important thing in life is to live and be active. Even going for a walk, its also something that we can do towards being active. Creating is being active. Reading is being active. As long as you're not apathetic. My motto is "I will not be pitied".

(13) *Finding peace and contentment*-finding peace and contentment included understanding of what a person has control over and what they do not. It also comprised the need to identify what is important and what makes a person fulfilled on the road to happiness. Examples of the 'pearls' that were included here are: [Person #26, Female, 84]-"I got everything I ever wanted in my life and that's why I'm not afraid to die", [Person #30, Female, 91]-"I feel like I've lived for too long, I'm not missing anything, but I feel very bad…I've been through enough", [Person #33, Female, 81]-"I've fulfilled my career life and was very wholesome when I resigned".

(14) *Taking an active part in planning your life*-planning ahead, being prepared for challenges and meeting expectations is an important part of people's lives. Older adults also stressed the central role making educated financial decisions plays when trying to realize a stable and happy life. Examples of the 'pearls' that were included here are: [Person #34, Male, 79]-"My biggest regret in life

is that I wasn't courageous and assertive enough. That's why I stayed with my ex-wife for so long", [Person #35, Male, 81]-"A good manager is born with those abilities. But he needs to be motivated to do so all the time.".

(15) *Adapting to what is*-the concept of ever-present change appears in this subtheme as the participants spoke to the necessity of adapting to a changing world and frustrations of not being able (or the desire) to keep up. Examples of the 'pearls' that were included here are: [Person #7 Female, -]-"'I've always been good. I always seemed good even when I was not good. You know, when you raise three children, and your husband has not worked for two years and all that, and the family has remained stable and strong and well-kept, it feels good to me. It depends on how you look at life, it is better to think positive than to worry. When I was younger I was angrier, today I know and take in the right doses", [Person #8, Female, -]-"I say a person has to live, all the paths that come your way must be gone through, Go through everything. for better and for worse. This is how a person progresses and learns everything.".

(16) *Be truthful*-the importance of keeping one's word was discussed in the interviews as the consequences for deceit were depicted as long-lasting and not easily resolved. Examples of the 'pearls' that were included here are: [Person #19, Female, 79]-"It is impossible to say that everything was perfect and always good but we helped each other, we listened to each other and there was patience, patience, patience which is most important.".

Theme #6: 'Regrets'-One of the more heavily populated themes during the interviews with older adults was that of regrets. This included regrets of dithering when needing to be decisive, of being impulsive when it was best to be cautious, of not furthering education, of marital trouble, and failing to be there when others needed help. Regrets were documented by many of the participants as they attempted to save younger generations from making the same mistakes they had made.

(1) *Regretting of acting or not acting*-Older adults framed knowledge and experience as the antecedents to be able to differentiate between opportunities and unnecessary risk. They also spoke of their own mistakes and urged others to learn from their errors: [Person #6, Female, 80] -"I didn't do a lot of things and didn't take a lot of roles because I was a mother. I wish I would have done it", [Person #28, Female, 78] -"I regret that all these different things happened to me. If I had brains I would not marry neither this guy nor that guy. When young people do a lot of nonsense, they have no one to guide them. I did not have parents that I could sit and consult with; I did not know what was right and what was wrong.",

(2) *Not Persevering*-The participants expressed regret over not working hard enough: [Person #6, Female, 80] -"I feel like a failure because I could be a teacher, but because I have golden hands, I knit".

(3) *Not Pursuing Education, or More Education*-A common regret among the participants was of not pursuing a university education or a trade. There were concerns expressed that in a rapidly changing business environment a person could be left behind if they had not obtained a sufficient level of education. [Person #1, Female, 76] -"my mistake was, that I didn't study, I rushed into a relationship also because he said I could still study later on and all of that, and it wouldn't be a problem. Today maybe I could do it, but then it was completely different", [Person #17, Female, 82] -"I took courses at the university, and to this day I regret not going to school regularly", [Person #25, Female, 83] -"I did not go to study because my father made us focus on learning more about our religion. I did not have the confidence to go study, I always worked in temporary jobs, no help from my family.".

(4) *Marriage and relationship issues*-Regrets concerning marriage included getting married too early in life, not finding the right person, and eventually divorcing. While marriage can be seen as a foundation for a prosperous life, a bad marriage can mean the opposite for some people. [Person #11, Female,] -"And I did not appreciate it when he was alive but only after his death and for that I am sorry but I am glad now that he chose me"

(5) *Not having more or any children*-The regret of not having children, or enough children, was expressed by several participants. [Person #3, Female, 80] -"Her memory be blessed, my mother told me to have more children so that I don't stay only with two children, I was very sorry that I did not listen to her. Two children are not enough", [Person #16, Female, 80] -"I'm sorry I did not bring more children into the world, because children bring happiness.".

(6) *Travelling*-Missing out on opportunities to travel due to starting a family or a career was a common regret among older adults. Traveling was depicted as a way to learn about the world and yourself: [Person #5, Male, 80] -"I would have liked to have time and a lot of money and not have to work, I'd go for a walk and take care of animals because I learn a lot from them. I love animals, I learn from them and I have satisfaction."

(7) *Not being with those who needed me*-Participants regretted not being there to support friends and family in times of need. They regretted having been a poor communicator, an over-disciplinarian, and not physically being present in hard times. [Person #28, Female, 78] -"Things I would have changed in my life would be insisting on flying my sick husband to get treatments abroad and by that saving his life", [Person #9, Female, 60] -"I'm sorry that at home with the kids I was busy putting out fires all the time instead of stopping and realizing that it was no longer me but was already them. It will be very difficult to stop it. They did not grow up in a healthy home, so they are not mentally healthy, they grew up in a very unhealthy home to say the least, so it is very difficult. And you understand that a child cannot change a relationship or family or think that a child can improve a married life".

(8) *Not taking risks, lack of courage*-Older adults commented on regrets where they failed to muster up the courage to meet a challenging situation. These lingering regrets took the form of limiting experiences to the familiar, not speaking up for what is important, and not being more assertive. [Person #15, Female, 72] -"I'm angry with myself, why did I tell the children my fears?", [Person #7, Female, -] -"There are things that I regret, and I would not do it again. From this I also learned things, I seek the good without there being any good. Because in every bad thing there is also something good that needs to be found, and I'm always looking for it. There are people, who always remember only the bad things. And that's a very bad thing. I have collected the whole good package, and with that I live and it gives me a different meaning to life, I look at the half full glass.".

Theme #7: 'Satisfaction from Life' -Participants in this study made an association between having satisfaction from life and having a meaningful life of meaning. By sharing what gave their own lives meaning they thus illuminated what might also be meaningful to others in hopes that it would help younger generations navigate their lives in productive and self-fulfilling ways.

(1) *Importance of friendships*-friendships have always been effective in protecting us against loneliness, at least to some degree, while providing a sense of community for the young and old alike. Older adults in this study spoke about how friends can also have a central role in providing intimacy and source of strength. [Person #14, Female, 90] -"I was lucky, I know Yiddish [the unofficial language of Eastern European Jews]. Today I talk less because I do not have to, but I talk with my neighbors every day."

(2) *Pride in accomplishments, personal growth*-being proud of life's accomplishments is perhaps more of a concern for older adults, but the youth can still benefit from being proud of their progress and use that as inspiration to tackle goals in the future. While working towards accomplishing goals is consistent with healthy life strategies, always striving for things which you do not have, can undermine accomplishments and lead to lingering frustration. Examples of the 'pearls' that were included here are:

[Person #21, Female, 82] -"I feel that I've gained from working in a job loving what I do, therefor not being bitter, only missing the years I was physically active.".

(3) *Acting appropriately and morally and with humility*-having a moral compass, whether it is founded on religious teachings or on a personal ethical code, can minimize our regrets and build better communities. In this study it was also associated with the notion of a universal justice where good things happen to good people. Something we all hope for. Examples of the 'pearls' that were included here are: [Person #35, Male, 81] -"What made me stand out more than others is that people loved working with me, I succeeded to create work teams that were comfortable for the employees and enforced professionality.".

(4) *Success requires work and perseverance* -in the age of social media where we can, very quickly buy into the illusion of "success", it is important to stress that stable, realistic and personally meaningful success comes, mainly, from effort and determination. The ability to shrug off disappointments and stick to a goal were highlighted as important strategies to long term success. Examples of the 'pearls' that were included here are: [Person #30, Female, 91] -"My lifetime achievement was saving my own life in the holocaust camps, and that required lots of perseverance".

(5) *Helping and caring for others*-helping others during their time of need was a theme well with our participants, stressing how rewarding it can be. It highlighted the importance of building better communities by caring for one another and the sense that we are all in this together revealed itself. Examples of the 'pearls' that were included here are: [Person #26, Female, 84] -"Usually I help and love helping others, I learned from my difficult life how hard it is asking for help.", [Person #5, Male, 80] -"I'm glad I'm helping people who need my help and that's what makes me happy. Say a person wants help because he cannot do it himself, so if I can help him and donate my time and he enjoys my help, it makes my day and I enjoy it even though not everyone I help says thank you very".

(6) *Resilience, being true to yourself*-at times, when we may be confronted by life's challenges, it may seem easier to compromise what is important to us for an expedient solution. Older adults here spoken against this practice and promoted the importance of maintaining faith in one's own self and being an independent agent when your personal values are threatened. [Person #13, Female, 81] -"I grew up in a home that loves to help and came out the same. My father-in-law and mother-in-law were both like that and my husband too."

(7) *Inviting positivity into my life, appreciating what I*

have-avoiding people who may have a negative influence and trying to keep a positive attitude in ourselves, takes effort. Our participants made the connection between maintaining a good attitude towards life as way to handle difficulties and challenges. [Person #6, Female, 80] -"I am willing to give my soul to a person in need . My advice to the next generation is to behave with nobility of mind, not to speak slanderously, to appreciate everything you have, to overcome everything, to maintain honesty and to walk in good ways.", [Person #7, Female, -] -"Today every time something happens to me, I try to think how to behave and think positively I try not to get upset. Even when I get hit, I say thank you, and think to myself that it could have been worse."

(8) *The importance of family and children*-families can be central to what people consider important in their lives while being a source of strength and an accomplishment in its own right. The participants spoke of the benefits of having children and the community that a family can provide: [Person #11, Female, -] -"Take care of each other and be caring and again I say it's family - if someone in the family falls, then you should get up to pick him up. He knows that he will never be made to fall. It's a family. Family is like that, through fire and water."

(9) *Appreciation, living a full life and now!* -making the most out of life can mean making the most of each and every moment and realizing how precious and fleeting it is. The participants were consistent in their urging to seize the day. Examples of the 'pearls' that were included here are: [Person #28, Female, 78] -"I do what I want: meet people, go wherever I want, travel with whoever I want. The sky is the limit, I learn, and I volunteer".

(10) *Staying active-Older adults are very mindful of* the health benefits of staying active as they may have to face the consequences of an earlier inactive life. The participants spoke of their efforts to stay active and the benefits which follow. [Person #11, Female, -] -"I am very glad that I got the job here at the seniors club because I really like my job and I enjoy it very much, and it keeps me active and involved with others."

(11) *Not being materialistic, money isn't everything*-the notion that money is important comes as a surprise to no one though it is sometimes necessary to remind ourselves that it is not everything, or even the most important thing. The idea that money cannot buy happiness came through in the responses from the participants. [Person #15, Female, 72] -"Do what you want, do not think twice, even if it costs money. Money comes money goes", [Person #14, Female, 90] -"Even if the salary was small. it was a blessing. Because there are arguments and it is wrong like if they say the food is not tasty and throw it away, it is as if

you are underestimating the things that you have."

2. Discussion

This research project aimed at engaging older adults in reviewing their lives' achievements, victories, failings, and regrets by using a thematic analysis. In the process of answering our questions and thereby reminiscing on their past the themes of formal and informal education, marital/intimate relations (and their cultivation), shaping future generations and recognizing and resolving regrets all emerged as central to understanding their own lives and hopes for the future. The results of these 102 interviews and analysis include:

Theme 1

Need to Study or Learn a Profession, was a popular theme constituted by several concepts which was associated with vocational success and contentment. This included perseverance, diligence, and hard work in cooperation with others, where older adults encouraged younger generations to "keep trying", be honest, prompt, and fair. The capacity to work with others, navigating the expectations of supervisors, making the boss "look good", and being a friendly were all behaviors associated with career success. Along with that, similarly, education and planning for the future were highlighted as essential seen as foundational building blocks for any successful career with advice given to acquire a trade or a profession, explore what area of study interests you, and being adaptable. The elderly also expressed re was also contrasting commentary about the ability to be proud pride in their education and career with encouragement to be humble.

Theme 2

Marital Relationships included several subthemes, of which the most 'popular' commented on was that of making a commitment, where the younger generation is older adults advised younger people to take the leap and commit to the institution of marriage. They also expressed pride joy and gratitude pride for their own positive experiences with marriage, having found a great partner and how it was an "achievement". Compatibility with a life partner was also a repeated concept in the interviews with recommendations that one needs pleas to get to know someone the other person before committing, being honest, and having common interests. Other important aspects of marriage for older adults were, being faithful, caring, respectful, sharing intimacy, communicating clearly on, and navigating differences. These presented themselves in exclamations of gratitude for that they never undermining their bond by straying on their wives and or husbands, the dangers of sacrificing closeness for a career, and encouraging the demonstration of love on a regular basis often,

the importance of communication, and taking a real interest in their partner's happiness.

Theme 3

Shaping the Future Generation/Raising Kids, addressed the active strengthening of encompassed actively enhancing the family bond, establishing resilient lines of communication and inspiring intimacy between family members. It also included suggestions for viewing conflicts as an opportunity for creative resolution and forgiveness, rather than as a catalyst for grievances or judgement. The elderly highlighted instilling values which go beyond material wants or needs, and promoting prosocial behaviors and empathy towards all fellow humans. Additionally, they stressed responsible parenting which meant, to them, that a focus was placed on the importance of educating children about their own autonomy and how it relates to personal responsibility. Children's dreams and life goals were also seen as vital and they advocated adults' support and encouragement, with the child's particular goal being seen as far less important than the act of striving for it with the support of parents in helping to help them achieve it. This kind of support and communication between family members was also tied to deeper personal meanings where the close bond between members could (at least partially) shield provide support against them from loneliness and meaninglessness. Lastly, taking pride in the family's accomplishments, and one's own parenting successes were highlighted as part of viewing the family unit should be a constant as a source of strength and joy. This theme highlighted placed the family as the foundation of an one's individual's personal growth and envisioned it as a touch stone which could always be a source of provide strength, a sense of comfort, and place in the world. Older adults' concerns are clearly focused, here, on here are largely for the next generation and how their own accrued knowledge could facilitate future success. This interpretation of one's past life in ways that provide guidance to others is also associated with generating life meaning for older adults. This process of meaning-making is consistent with Hofer, Busch, Au, Šolcová, Tavel, & and Wong's [40], research, which, in a cross-cultural study, showed focused how reminiscence is used to prepare for death and teach others about that process. Both of these "reminiscence functions" where found to motivate generative behaviors associated with meaning-making across all of the cultural samples.

Theme 4

Relationships with Parents and older adults. Older adults participating in this theme placed a value of the knowledge and experience they and others possessed which highlights the importance of communication between the generations. This was followed up by encour-

agement to accept that parents likely have more experience than their children, and how younger people could benefit if they listened more. There were also calls to respect older adults, by being nice, putting down electronics and paying attention, openly expressing love, and helping care for older adults when the needed it. This last idea was elaborated on by comments about how family will care for their own members better than long term facilities, and how they wished they had taken better care of their own parents when they had a chance.

Theme 5

Dealing with Personal Difficulties/Insights on Life and Adapting, touched on a range of concepts associated with individual responsibility, autonomy, and overcoming challenges. Some of the more common ideas which were endorsed by the elderly included acquiring knowledge and learning from experiences, where the old insight of learning from others' mistakes is always better than learning from your own; older adults also highlighted the importance of knowledge and that travelling to new places or doing something new could provide insight into different ways of acting. Participants warned the youth to avoid trouble as much as possible, by being cautious, vigilant and doing one's best to avoid or control vices. To this end, they recommended placing a goal for oneself in order to guide younger generations, or to avoid bad influences, and that life, at times, becomes difficult when people make it difficult for themselves. Further, a premium was placed on a person's unique identity and the ability to express that freely. Strength of character and resolve were seen as indispensable traits if a person was going to be able to express themselves and succeed in the world. Also related to this, and the most common of all the ideas shared was the importance of determination and hard work, especially when facing adversity. Tied to this concept of determination where phrases and words like, self-reliance, resilience, keep going, fight, don't give up, discipline, persevere, overcoming, just keep trying, drive, stick with it, be strong. Many of these comments were supported by additional advice of taking life seriously, being aware of what the important things in life are and taking an active role of planning your life. And while there was a large focus in the interviews on personal responsibility and self-empowerment, there was also an acknowledgement that not all challenges can be faced alone and that sometimes it is important to seek help when needed, by taking advice, seeking knowledge, learning about life from those who have already lived it, being open to other points of view, and having to shut one's mouth in order to open one's mind. Other themes mentioned included the importance of relationships in the face of loneliness

and finding comfort in faith all in relation to overcoming personal difficulties (see Rokach [42]). This connection between resiliency, reminiscence, and older adults has been explored in Meléndez, Fortuna, Sales, & Mayordomo's [43] research which analyzed the effectiveness of a reminiscent program to improve problem-focused coping and resilience in older adults. In a repeated measure study they showed instrumental reminiscence to be an effective way to improve adaptive capacity and resilience in older adults while providing an improvement in quality of life using the Mini-Mental State Examination, Brief Resilient Coping Scale and Stress Coping Questionnaire. These findings are consistent with our study's goal of not only facilitating the generational exchange of knowledge, but the improvement of well-being in older adults.

Theme 6

Regrets turned out to be one of the more popular prevalent themes as older adults discussed their own mistakes of doing or avoiding acting in various situations, and advised others on how to avoid similar outcomes, which is consistent with findings by Landman and Manis [31], who observed that most people wished they had taken a different path in life. These regrets were commonly expressed regarding what the person may have done, or missed on doing, in the mentions of missing out on opportunities, juxtaposed with impulsively acting without doing due diligence. Advice related to these concerns was to wait until you have more experience before making large life decisions and to listen and learn from your parents and grandparents. Being undisciplined financially was another common concept, as older adults looked back and regretted spending when they thought they should have held on to their money. commented on taking too big a financial gamble on certain investments and the lack of budgeting. Further, the participants spoke of regret of not possessing enough courage to try something new, like pursuing their education or staying in a bad marriage, travelling, or being assertive, all consistent with the desire to make changes when regretful of the past [28]. Other regrets included not working hard enough or avoiding education, with not pursuing higher learning as the single largest regret for the participants. Not being by the side of those who went through a rough patch and needed them was another salient. The next most mentioned regret which was not being there when others needed them expressed. This was articulated in comments about moving away from family, not possessing enough patience, pulling back when illness presented itself in a loved one, and concentrating too much on discipline and not really listening to their children. There were also regrets, exclusively from females, of getting married too early or at all, while men exclusive-

ly remarked they wished they had been a better partner or had not strayed. A common thread running through this theme was the regret of lost possibilities as the participants did not have the courage to take risks in order spend the required time or effort investing in themselves in order to realize their potential. With regrets and their association with a lack of closure, people can feel that the past remains unresolved, meaning these emotions could have contributed to the popularity of this theme [34,36].

Theme 7

Satisfaction from life. Here participants reflected on their own, and in general on satisfaction from life, and provided a variety of 'pearls' for the younger generation on how to achieve it. Firstly, the importance of friendship was highlighted. Belonging, being surrounded by those who care about us and being helped by them when one is in trouble was mentioned by our participants, and is in line with Rokach's [42] writing on loneliness and who friendship can ameliorate one's loneliness and isolation. Satisfaction also comes from persevering in helping and supporting others, and strengthening family bonds and acting morally and humbly while being true to ourselves (see also [43]. Other reflections and pearls included the suggestions that people need to stay active, act proactively, appreciate what they have and not forget to be thankful for it. The elderly highlighted their belief that money is not the end all and be all and how the most cherished things in life are not material in nature. Mentions of morality, moderation and balance were also common, with advice given to always be honest, fair and loyal, to avoid drugs and smoking, not looking down on others, and the overarching notion that the universe is just with good things happening to good people. Related to this were the themes of living a life whose hallmark is personal growth, taking opportunities when they presented themselves, and understanding that you need to be responsible for your own happiness.

The relationship between satisfaction of life, reminiscence, and improved outcomes was explored by Viguer, Satorres, Fortuna, and Meléndez [44] in an experimental study which showed significant improvements in psychological well-being and satisfaction of life where the effects of life satisfaction were still present in a follow up three months afterward. This adds to the evidence that these projects can benefit all parties in meaningful ways and add to a measurable improvement in life quality for older adults.

In concluding, we believe our study has contributed to the relevant literature by facilitating and documenting several beneficial processes which have been highlighted in previous studies mentioned above. These include the establishment/re-establishment of life narratives, preparing for end of life, and production of life meanings - all of which have been associated with elderly flourishing [9,11-12]. We also believe, through the interview process and thematic analysis, this study created a resource of guidance and actionable advice focused on navigating life challenges for younger generations. With these dual objectives met, it is reasonable to forward our study as a framework for future research which would emphasize the production of tangible benefits mentioned above, leading to better outcomes for older adults and the preservation and dissemination of knowledge. To this end, since this study only conducted interviews in the Westernized county of Israel, future studies could be conducted outside these communities so the extent of this approach's generalizability can be examined. That said, due to previous studies and our own research, we do believe this approach to research to be widely generalizable to many elderly populations, and a net benefit to participants and the wider communities.

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REVIEW

Job Loss During the COVID-19 Pandemics and Its Psychological Consequences

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ARTICLE INFO	ABSTRACT
	The Coronavirus pandemics, or the COVID-19, came as an unwelcomed guest that did not want to leave, where people until today do not know for sure all the ways it affects people's health and overall being. The year of 2020 will be remembered as the one in which life almost stopped. A year full of losses that continue, from losing people dear to us, to losing jobs, opportunities, and freedom in almost every sense. This paper covers the consequences of the COVID-19 outbreak that it had on people, focusing on the job loss and unemployment, the healthcare opportunities and availabilities, the gender discrimination in the process of losing jobs, and the most importantly the psychological consequences people suffered from, due to isolation, inability to work and to provide.

1. Introduction

The year 2020 is the year that will be remembered in history as the year when many lives were stopped, forever on this world, or just for a period of time. The COVID-19 pandemic or the coronavirus pandemic, an outgoing coronavirus disease was first identified in the Wuhan, China at the end of 2019. The WHO (World Health Organization) declared it a pandemic in March of 2020, and as of the January of 2021, the number of reported cases raised up to 93 million with over 2 million deaths globally. [1] After the first cases were identified and shared with the world, people were confused and scared as the virus is different from any other the medicine has faced, even though the COVID-19 (coronavirus disease 2019) comes from the

coronavirus family of viruses from which the most famous are MERS (Middle East Respiratory Syndrome) and SARS (Severe Acute Respiratory Syndrome).

As the virus started to spread to almost every continent and every country in an unexpectedly short time, the countries had a different way of dealing with it. It is believed that the way the virus spreads is mainly through droplets that are released when a person coughs and sneezes, which then made it one of the main precautions to keep a safe distance, to regularly wash and sterilize hands, and to wear masks. The symptoms, according to WHO, are not too clear or universal as people with a positive test for COVID-19 reported a lot of different symptoms and side effects. The most common ones are fever, cough, tiredness, and loss of taste or smell; the less com-

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mon symptoms involve the sore throat, headache, aches, and pains, diarrhea, a rash on the skin, red or irritated eyes, and all those symptoms are seen as mild and mostly require patients to isolate themselves and take care of their bodies with healthy nutrients and medicine if needed. The serious symptoms require immediate medical care as they may lead to fatal endings, the symptoms involve short-ness of breath or difficulty breathing, chest pain and loss of speech or mobility and confusion. Easy transmission, sometimes even with precautions, ended with COVID-19 clusters and was one of the reasons why many countries started making decisions about lockdowns and curfews.

Shutting down the cities due to COVID-19 pandemics affected the economy in the majority of countries, which was followed by people getting dismissed, leading to recession. [2] People were getting sacked and were stuck at home without many opportunities to find another employer who could afford new employees. People started losing their family members and friends to the virus about which no one can tell much information about, there was a lot of fear and anger people were feeling, and losing jobs and careers on the other hand made people feel like they are losing control of their lives. Every aspect of life seemed like it was crashing, people were getting isolated and only some were happy enough to have families with whom they could isolate and spend months with in a closed and restricted area, but many felt loneliness like never before and the mental health of many people was affected. The numbers of new cases keep going up even after more than a year from the first case recorded, but in some way, people are adapting to the new lifestyles, as working from home or starting their own business became an alternative. People are also getting used to avoiding social interaction with large groups of people at the same place, and at the same time they are trying to overcome feelings of loneliness. It is important to focus and provide sufficient psychological help, counseling, and support to people during these hard times, and the focus of this paper will be the job loss caused by the COVID-19 pandemics and psychological consequences, as well as impacts that it has on family relations, financial security, and wellbeing.

1.1 Job Loss and Gender Differences

In most countries economic activities are dependent on in-person interactions, different jobs come with different infection risks where some jobs have higher exposure and other jobs can afford employees to start working from home which was the case for a lot of firms. [3] The low-wage jobs come with higher exposure as they involve more in-person interactions, so we have people with a high risk of being infected for a small amount of money,

and on the other hand, we have people who lost their jobs. According to OECD [4], the crisis is having the greatest impact of joblessness and poverty on young people and women, as they are having not so secure and skilled jobs, and millions of people have been provided with reduced hours and work from home, but millions also have lost their jobs completely.

A study was done by Dang and Nguyen [5] across six countries as China, South Korea, Italy, Japan, United Kingdom, as well as the four states in the United States, where it was found that women are more likely than a man to lose their jobs permanently but there were no gen-der differences noted for the temporary job loss. The same study also shows how women are more scared than men about the future of their incomes due to the COVID-19 pandemics, but that is then one of the reasons why fe-males tend to increase their savings and reduce more their consumptions. [4] We see that females are more at risk of losing jobs as the economy is crashing and being unstable all around the world as around 58.6% of the workforce in the service sector are women. It is not strange to find gender differences, especially when the world is stopping, when shops, restaurants, and many services are closing, decreasing working hours or employers, but this is the problem that countries representatives and different orga-nizations, I believe, need to take seriously. Many females are single mothers, many females do not have other sup-ports, and governments need to provide policies that will support women, during and after pandemics.

Women are not the only ones who became the highest risks categories for the job loss caused by the COVID-19 pandemics. Some other categories involve the older em-ployees who suffer from chronic diseases and are at risk because of poor health; younger workers seeking employ-ment, as employers are having limited funds and would prefer more experienced employees. Self- employed workers as their employment is always flexible and they are unprotected in terms of health care and social protec-tion; and lastly the economic migrants as the pandemic has prevented them to come to desired destinations and countries they were seeking employment in. [6] Some firms in Bosnia have proposed an offer to families where both spouses are working with the same employer, to decide on their own who is going to leave the job, where another spouse is having a safe job for the time being. I believe this practice made it easier for a lot of families to keep a safe income, choosing on their own the best op-tions and who will find another job in a shorter period of time. But even this model shows us the presence of gender discrimination and inequality, as most females would stay and males, as they are more preferred in business, would

find another job more easily.

1.2 Job loss and Health Care

In March of 2020, the International Labour Organization (ILO) [7] estimated that around 25 million jobs would be lost worldwide, due to the Coronavirus outbreak. Between February and April, around 22 million jobs were recorded and from April to June there was a rebound of 7.5 million jobs. One survey showed data of people who lost their jobs or work-related income during the pandemics, and the way it affected the health care of them and their families. Findings portray how nonelderly adults who lost their jobs, are more likely to have problems with the affordability of health care, than families who did not face such economic effect. More than half of them and the ones with family members who have chronic conditions, families who have children under 19, avoided the health care because of, firstly costs that can not be met, and also the fear and concerns about exposure to the coronavirus in health institutions. [7] Losing jobs directly affects the affordability of health care, especially in the pandemic season where there is a high risk of getting the virus and the possibility of needing proper medical care, but people can not afford it without proper income.

Health care is being avoided with the fear of getting infected, a lot of doctors in many countries advised people not to come to hospitals if there is no serious reason and need for it. But avoiding and delaying the proper healthcare due to no income, is risky for the people who have ongoing medical problems, coming to the high possibility of having long-term consequences, but also, according to the study done [8], would contribute to the differences and already existing polarization in an ethnic and socioeconomic sense. Another important factor is the families with kids, where parents would avoid or not be able to visit pediatricians regularly, where some developmental risks may be faced without the doctor's involvement, and again this has a long-term effect on child's overall health. The vaccinations are not being administered for a lot of children, where they're major risks for getting different preventable diseases [9], even though hospitals and doctors are preoccupied with the coronavirus outbreak and keeping people safe and well treated, we should not keep aside other important doctor visits, especially for children and elderly people.

1.3 Psychological Consequences

As mentioned at the beginning, many countries out ruled lockdowns, curfews, and isolation as important ways of fighting the COVID-19 pandemic. From the men-tal health perspective, the isolation process carries many risk factors and concerns if the isolation tactic would be a long-lasting solution. According to Safai [10], mental health professionals fear the consequences of self-isolation, such as increased incidence of depression, increased anxiety, and domestic violence many times related to alcohol or substance abuse. Fighting the virus just by isolating itself represents a trigger for many individuals, and those who lost their jobs on top of that have one more fight to fight, most of the time by themselves. Research suggests how people who struggle finding or maintaining employment and jobs, a lot of times suffer substantial psychological distress as a result of it.[11] According to Merriam-Webster[12], the work is "the labor, task, or duty that is one's accustomed means of livelihood". Work and job is the source of motivations, values, the way one chooses his or her career expresses their beliefs, and they take a significant meaning from the work they do. Being successful in work is what brings meaning to some people's lives, a big portion of one's life is spent working or building careers, and with such significance, we can easily conclude the importance it has to the psychological well-being of a person.

A job loss represents an immense stress source,[13] especially when it happens quickly and without much preparation for it, such as during the pandemics. Individuals who lose jobs and get separated from their work start questioning their abilities in life, and if the unemployment period lasts for a long period of time, some risk factors would easily follow, such as alcohol abuse, depression, anxiety, family problems, and even suicide. Getting fired for some people may have a positive side, for example, an opportunity for a change, a new workplace, and colleagues, but even the process of search has its own effect on the psychological well-being of a person.

As in many other situations, even the unemployment during COVID-19 pandemics is not the same for all, as some categories of people are having harder times than others. One study covered the COVID-19 outbreak and its effects on job security and emotional functioning of women with breast cancer, where the results showed how women who were unemployed due to COVID-19 had a greater level of job insecurity than those who continued their work. Another more important finding is that women diagnosed with breast cancer are at higher risk of anxiety and depression disorders, as well as poorer cognitive functions, and the emotional distress in those women is directly associated with poorer quality of life in general and the job insecurity only came as an additional increaser of symptoms and risks mentioned above.[14]

We are living in a time of extreme social changes for

which not many people are prepared for. The isolation and lockdowns for some people were too much, and the continuation of it in the case of not being able to take the virus under control only prolongs the pain and suffering of people who are afraid of the whole situation and what tomorrow carries with it. The economic crisis, which led to job losses and increased unemployment rates, as in the case of 2008, showed an increase in suicide rates. According to one study in Bosnia, where the cases of suicide were analyzed during the pandemics, concluded that those restrictive measures carried due to pandemics are representing the triggers for people fearing and facing job loss and having existential issues as well as the people with preexisting traumas and PTSD such as for war veterans.[15]

Job loss and unemployment are also directly related to family functioning, where WHO and other sources, such as mental health organizations, are trying to draw attention to the problem and the risk of child maltreatment and abuse as a consequence of economic crash and losing job during COVID-19 pandemics in particular. The investigations done during the pandemics of 2020, showed that job loss of a parent was predictor for psychological maltreatment and physical abuse towards children, but the association between the two was highly dependent on the manner and how parents had a habit of coping with stressful situations and experiences in life in general[13]. Observing the collected data and the study, researches have found that using positive cognitive framing, a technique in psychology used to challenge and change the particular view on the situations and thoughts, could help to decrease the negative effect of the parental job loss on the child abuse and maltreatment through stressful times, during and after the pandemics. According to Lawson and Simon,[13] unemployment and losing a job is one of the biggest life stressors, especially for people who have families, and the literature mentioned the "family stress model" which states that the accumulated stress caused by economic adversity as unemployment, is increasing the risk of child maltreatment or abusement.

2. Conclusion

The COVID-19 pandemics brought us the feeling of powerlessness and dejectedness over some aspects of our lives. The stressful situations and experiences it brought to us will make new generations look at and live their lives differently. Restricting freedom, getting isolated, getting fired, and trying to survive during the hard times while being unemployed comes with particular psychological consequences. People who were suffering before with depression, anxiety, and many other psychological disorders,

mainly increased their symptoms during the isolation period, and the ones who thought that they had their life under control, started feeling like they are losing everything they value in life, like their jobs.

COVID-19 recession led to people getting fired or having a hard time finding an employer who can benefit from new employees and losing the secure source of income caused substantial psychological distress while making it difficult to get proper health care. Different categories of people who were getting dismissed were affected diversely. Ones who were already marginalized or had an already existing physical or mental health problem only got their symptoms to worsen.

Gender differences keep being persistent also during the hard times for the humankind, the weakest in our society became even weaker, at health risk people were slightly moved to the second or third plan as the focus of medical care is mainly on the COVID-19 patients and the treatment of symptoms this new virus carries. As the weakest in society will always be the easiest victims of the unfairness and hard times, the children in families as the weakest members also suffer and feel the consequences of the parents' development or stagnation in their careers and socioeconomic statuses that may be changed due to getting dismissed.

3. Recommendations

It is only a matter of time when we all will feel the true psychological consequences of the isolation and everything that the pandemic of coronavirus brought to us. In this paper, we saw different ways the pandemics affected job loss and how every aspect of human life is being a part of that calculation. I believe how things could have a better ending and better future if we act on time and give importance to problems which could be the long-run ones. The psychological health of people needs to be a priority despite the physical health, especially during those hard times. I believe each country and city needs to have supportive policies for the ones in need, the people who are losing their jobs, chronically ill people who are losing jobs, families of people who became unemployed, and many others. Now that we have meeting restrictions, online counseling, both individual and group, the positive psychology, financial and social support are all the ways to deal with such obstacles. The mental health organizations are warning us from the beginning of the pandemics, it is a time when we can not do much to change things around us, but it is important to work on ourselves to have a healthy mentality and positivity which can help us to get over the obstacles we face in our lives.

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ARTICLE

The Effect of WeChat Usage on Upward Social Comparison in Undergraduates

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ARTICLE INFO	ABSTRACT
	To explore the status of undergraduates' WeChat usage and upward social comparison, and analyze the relationship between the above two variables. Totally 754 WeChat undergraduates were selected through poster recruitment from 5 colleges in Guangdong Province. They were investigated with Access Frequency to Social Networking Site Scale (AFSNSS), Upward Social Comparison Subscale of Iowa-Nwtherlands Comparison Orientation Measure (INCOM-USCS). The score of overall emotional engagement(OEE) of AFSNSS and the total standard score of INCOM–USCS (TSSI-U) were (22.41±4.70) and (0±4.5), respectively. The correlation between WeChat frequency and TSSI-U was not significant. TSSI-U was significantly positively correlated with the score of OEE and other items of AFSNSS ($r=0.161\sim0.413$, $P<0.01$). Multiple linear regression analysis showed that The scores of item 1,7and 8 of AFSNSS, as well as family economic status, grade ranking of academic performance (GRAP) and the purpose of WeChat use were postively correlated with TSSI-U ($\beta=.104\sim.234$, $P<.05$). Class cadre or not and origin were negatively correlated with TSSI-U ($\beta=-.089$, $-.130$, $P<.05$). Conclusion: It suggests that WeChat usage may be a related factor for undergraduates' upward social comparison.

1. Introduction

Social comparison is that people compare their own situation with those of others, in order to clarify their own social attributes, construct self-evaluation, produce self-expectation, create a good self-image and promote self-improvement [1].

Social comparison exists widely in human social life. According to the direction, social comparison can be divided into three categories: upward, downward and parallel. If self-improvement is the basic motivation and people who are better are chosen as the comparison object, it is called upward social comparison. On the other hand, if we choose people whose circumstances are worse than ours, it is called downward social comparison which purpose is to maintain self-esteem, improve emotions, improve self-evaluation, and achieve self satisfaction. The third is parallel social comparison, in which we usually have no realistic and objective evaluation criteria. In order to understand ourselves, we compare ourselves to those who

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are in a similar situation [2-4].

At present, social networking sites are becoming more and more popular because of their convenience. College students are the main force of users of social networking sites [5]. Because social networking sites provide a lot of social information about users, it inevitably leads to social comparison among visitors, which is often upward social comparison. For visitors, there are two main types of protagonists of social information on social networking sites: strangers and acquaintances. Because strangers (including all kinds of stars, Internet Celebrities, etc.) are far away from the visitors themselves and have low self-correlation, social information about strangers is not easy to cause in-depth social comparison, and it is not likely to cause adverse emotions of visitors because of the comparison. Comparatively speaking, the social information about acquaintances is more likely to cause in-depth upward social comparison, and it is also more likely to cause negative emotions such as depression and jealousy. That is because most of the social information displayed by acquaintances on social networking sites is carefully selected, positive and idealized. If this kind of information were frequently contacted with, they will unconsciously make the visitors a detailed comparison with their own situation, which will lead to upward social comparison, and produce negative emotions such as depression and jealousy because of the feeling of inferior to others [6-11].

Previous studies have mostly focused on the correlation between the frequency of social networking sites and upward social comparison [9,12], and the impact of user' upward social comparison on their self-evaluation [3,4,8], emotions [2,4,8-9], behavior [6] and quality of life [4,11]. There is not much attention on which elements in the usage of social networking sites will affect users' upward social comparison. This paper takes WeChat, the most popular social networking site among Chinese college students [5], as an example to answer this question.

2. Research Object and Method

2.1 Research Object

2.1.1 Sample Size Estimation

The minimum sample size is calculated by G * Power 3 [13]. As more than 98% of college students use WeChat [6-11], with 16 demographic variables and 8 scale independent variables in this study, the test effect value is at medium level [6-11], that is, d value is 0.50-0.80 [14]. In this study, we set the effect value d = 0.70, the statistical test force $1-\beta = 0.80$, the type I error probability $\alpha = 0.05$, and the minimum sample size is calculated as 351. The minimum sample size is determined

as 422 due to a 20% of possible follow-up loss rate.

2.1.2 Sampling

Through poster recruitment, 850 WeChat students were selected from Guangdong Medical University, Dongguan University of Technology, Guangdong Polytechnic Normal University, Zhongkai University of Agriculture and Engineering, as well as Guangdong University of Finance and Economics. 754 valid questionnaires were collected, with an effective rate of 88.7%. There were 311 males and 443 females; 158 freshmen, 167 sophomores, 153 juniors, 143 seniors, 133 fifth year students; 353 students from urban areas and 401 students from rural areas.

2.2 Tools

2.2.1 Access Frequency to Social Networking Site Scale, AFSNSS

It is compiled by Ellison [15] (2007) and revised by Niu Gengfeng [16] (2015) into Chinese version. There are 8 questions. Self-report method is used in the first two items to evaluate the number of friends on social networking sites and the average daily duration of using social networking sites. The Likert 5-point scoring method is used in the last six items to score from 1 to 5 points corresponding to "completely non-compliant" to "completely compliant". The total score of the last six items is the overall emotional engagement (OEE), which measure the intensity and dependence of emotional connection in the usage of social networking sites. The higher OEE, the higher the degree of emotional connection and dependence on social networking sites. In this study, the Cronbach's α coefficient of the scale was 0.81.

2.2.2 Upward Social Comparison Subscale of Iowa-Nwtherlands Comparison Orientation Measure, INCOM –USCS

Compiled by gibbons and bunk [17] (1999) and revised into Chinese version by Bai Xuejun, et al. [18] (2013). INCOM-USCS has 6 items, classified as a single dimension. The Likert 5-point scoring method is used to score from 1 to 5 points corresponding to "completely disagree" to "completely agree". The higher the total standard score of INCOM-USCS (TSSI-U), the stronger the tendency of upwards social comparison. In this study, Cronbach's α coefficient of the scale was 0.91.

2.2.3 Self-compiled General Personal Information Questionnaire

It has 16 items, including gender, age, grade, origin,

colleges and universities, major, grade ranking of academic performance(GRAP), WeChat-use age ,the purpose of WeChat use, etc.

2.3 Data Processing

SPSS 20.0 was used to analyze the valid data. Descriptive statistics were used to calculate the average score and standard deviation of each scale. Pearson product-moment correlation coefficient was used to explore the correlations between variables. Multiple linear regression analysis was used to analyze the related factors of TSSI-U.

3. Results

3.1 The Current Status of College Students' WeChat Usage and Upward Social Comparison

It can be seen from Table 1 that the use of WeChat and upward social comparison in this group are in the middle

level[15-18].

3.2 Correlation between WeChat Usage of College Students and Upward Social Comparison

It can be seen from Table 2 that there is no significant correlation between the frequency of WeChat and TSSI-U. The score of OEE and other items of AFSNSS were significantly positively correlated with TSSI-U (r=0.161 ∼ 0.413, $P < 0.01$).

3.3 Regression Analysis of College Students' WeChat Usage and Upward Social Comparison

3.3.1 Variable Assignment

Firstly, the possible situations (alternative answers) of each demographic classification variable that may affect TSSI-U are assigned (See Table 3).

Table 1. WeChat-use age, scores of INCOM-UCSC and AFSNSS

items	$\bar{X}$	SD
1. How many years have you used WeChat?	7.00	0.7
2. The tatal standard score of INCOM-UCSC (TSSI-U)	0	4.5
3. The scores of the 8 items of FSNSS		
(1) How many WeChat friends do you have?	95.1	23.2
(2) How long do you use WeChat per day in the past week?	6.1	2.5
(3) Using WeChat is part of my daily activities.	4.1	0.9
(4) I will be very proud to tell others that I use WeChat.	3.0	1.1
(5) Using WeChat has become my daily habit.	4.2	0.9
(6) If I don't log in to WeChat for a period, I feel disconnected from the world	3.7	1.0
(7) I feel that I am a member of WeChat users.	3.8	1.3
(8) If WeChat does not exist, I will feel very sorry.	4.3	1.5
4. Overall emotional engagement (OEE)	22.4	4.7

Table 2. Correlation Analysis of AFSNSS and INCOM-UCSC Scores

	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	OEE
TSSI-U	.377 **	.047	.172**	.161**	.169**	.206**	351**	.322 **	.413**

Notes: ** $P < 0.01$

Table 3. variable assignment

items	choice and assignment
1.gender	0=male,1=female
2.grade	0= Freshman,1= Sophomore,2= Junior, 3= Senior, 4=fifth year
3. GRAP	0=after 70%, 1=51 ∼ 70%, 2=31 ∼ 50%, 3=11 ∼ 30%, 4= top 10%
4. School category	0= science and engineering，1= liberal arts, 2= agricultural, 3=medical, 4= physical education, 5=arts, 6= comprehensive
5. Major category	0= science, 1= engineering course, 2= liberal arts, 3=medical, 4= agronomy, 5= management, 6=sports, 7=arts
6. Class cadre or not	0=Yes,1=No
7.Nation	0=Han nationality,1= ethnic minority
8. Is you an only child?	0=Yes,1=No
9. Family economic status	0=poor, 1= in short supply, 2= average, 3= well-to-do, 4= affluent
10.origin	0=city, 1=town, 2= rural
11. Father's education	0= primary school or below, 1= junior middle school, 2=high school or technical secondary school, 3= junior college, 4= university or above
12. Mather's education	0= primary school or below, 1= junior middle school, 2=high school or technical secondary school, 3= junior college, 4= university or above
13. Father's occupation	0=IT and communications, 1=finance, securities and insurance, 2=commerce, 3=energy industry, 4= journalism, 5=real estate, 6=tourism transportation, 7=manufacturing, 8=education, 9=agric9ure, 10=other
14. Mather's occupation	0=IT and communications, 1= finance, securities and insurance, 2= commerce, 3= energy industry, 4= journalism, 5= real estate, 6= tourism transportation, 7= manufacturing, 8= education, 9=agric9ure, 10=other
15. the purpose of WeChat use	0=to study, 1=to work, 2=to pay，3=to entertainment, 4=for social contact

3.3.2 Multiple Linear Regression Analysis of Related Factors of College Students' Upward Social Comparison

Taking TSSI-U as the dependent variable and the score of each item of AFSNSS and the 16 demographic variables as the independent variables, the multiple stepwise linear regression analysis was conducted. The results showed that (see Table 4), the score of item 1, 7 and 8 of AFSNSS, family economic status, GRAP and the purpose of WeChat use were positively correlated with TSSI-U (β =.104~.234, P<.05). Whether class cadres or not and origin were negatively correlated with TSSI – U (β = -.130, -.089; P<.05).

4. Discussions

College students in this group use WeChat for an average of (6.04 ± 2.47) hours a day, and each of them has an average of (95.1 ± 23.2) WeChat friends. The above 2 indicators are in the upper middle level, which is consistent with the results of previous studies [19-20]. It is suggested that college students are very willing to use WeChat, and establish certain online interpersonal relationships through WeChat.

College Students also put a high level emotion into WeChat. They are used to using WeChat. The maintenance of interpersonal relationship, information acquisition and transaction processing is realized through WeChat to a large extent, which makes college students put more attention and emotion into WeChat [20-22].

Multiple linear regression showed that the scores of item 1, 7, 8 of AFSNSS and family economic status, GRAP, the purpose of WeChat are positively correlated with the total standard score of INCOM– USCS; whether class cadres and origin are negatively correlated with the total standard score of INCOM– USCS.

Compared with the non class cadres or the students in low GRAP, the upward comparison tendency of class

cadres or the students in high GRAP is higher, which is consistent with the previous research results [19-20]. Generally speaking, class cadres and the students in high GRAP are students with good character and learning and strong motivation. They used to take self-improvement as the basic motivation, choosing people who are better than themselves as the objects of comparison, and conducting upward social comparison tendency.

Students from cities have the strongest upward social comparison tendency, followed by students from towns and rural, which is consistent with previous research results [19-20]. It is suggested that the living environment (including the richness of vision, life requirements, comparable object and other factors) has an important impact on upward social comparison tendency. Compared with the students from rural, the students from cities and towns have richer living environment and broader vision, contact with more fields and levels of outstanding people, trigger their stronger motivation for self-improvement, and therefore tend to be more inclined to upward social comparison.

The higher the family economic status, the stronger the upward social comparison tendency of college students, which is consistent with the previous research results [20,23]. According to Maslow's hierarchy of needs theory [24], human beings have five needs. From low to high, they are physiological needs, security needs, love and belonging needs, respect needs and self realization needs. When the needs of the lower level are quite satisfied, the next higher level needs will be produced and pursued. Family economic status firstly affects the satisfaction of lower level needs such as physiological needs and security needs, while the upward social comparison is based on the needs of respect and self realization. Students with better family economic status have better satisfaction of their low-level needs. Therefore, higher-level needs such as self-improvement and self-realization are more likely to occur, and the upward social comparison motivated by this is easier to

Table 4. multiple linear regression analysis of main influencing factors of TSSI-U

dependent variable	independent variable	B	SE	β	t	P	R^2	R_{adj}^2
TSSI-U	item 7of AFSNSS	.283	.053	.234	5.206	<.001.	511	.508
	GRAP	.191	.030	.104	2.976	.003		
	Family economic status	.153	.051	.108	2.967	.003		
	item 8 of AFSNSS	.240	.042	.192	2.365	.018		
	item 1 of AFSNSS	.212	.015	.153	2.079	.038		
	class cadres	-.167	.032	-.130	-4.249	<.001		
	the purpose of WeChat-use	.258	.039	.218	5.377	<.001		
	origin	-.095	.023	-.089	-1.979	.048		

produce.

The purpose of WeChat use, the number of WeChat friends, "I feel I am a member of WeChat" and "if WeChat does not exist, I will feel sorry" are positively correlated with the upward social comparison tendency. These four factors describe the emotional engagement and psychological dependence of users on social networking sites from different perspectives. In other words, the higher the emotional investment and psychological dependence on WeChat, the stronger the upward social comparison tendency. It is consistent with the results of previous studies [6-11]. In other words, the higher the emotional investment and psychological dependence on WeChat, the stronger the upward social comparison tendency. It is consistent with the results of previous studies [21]. It suggests that psychological feelings can change people's behavior. Specifically, the higher the degree of emotional investment and psychological dependence on WeChat, the more likely it is to believe the information on WeChat; only when WeChat is more applied to social activities (rather than work, entertainment and other activities), and people and things closely related to ourselves are learned from WeChat, social comparison (including upward social comparison) can be generated by browsing WeChat.

Previous studies have suggested that daily WeChat-use duration positively predicts upward social comparison tendency [25], but this study fails to find a significant correlation between the two, suggesting that psychosocial factors are more likely to predict upward social comparison tendency than physical factors. The daily WeChat-use duration is a physical factor, which is restricted by many psychosocial factors. College students who use WeChat for the same duration every day may have different psychosocial factors [26], such as their purpose of use (learning, work, entertainment or social interaction, entertainment,etc), use methods (continuous use or cutting-edge use), and use situation (classroom or dormitory), etc. it is these differences that affect the upward social comparison tendency.

5. Deficiency and Prospect of Research

This study adopts the cross-sectional research model, which may have a certain impact on the accuracy of the research results, because the formation of the relationship between College Students' WeChat use (including WeChat attitude, use behavior and intensity) and upward social comparison needs a long-term development process, so future research needs to reveal the relationship between the two through tracking research.

Questionnaire survey is used in this study. There are some limitations in the research methods and perspectives.

Future research can try to explore this issue from multiple perspectives through the combination of multiple methods (such as case interview, questionnaire survey, randomized controlled experiment).

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ARTICLE

Ethnobotany and Indigenous Traditional Knowledge in Brazil: Contributions to Research in Ecopsychology

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ABSTRACT

This paper is the result of an investigation of the flora and traditional knowledge in the conception of *Javaé* indigenous people from the Txuiri village located on *Bananal* Island, Brazil. The objective is to investigate the plants used by these indigenous people, their diverse uses and to understand how traditional knowledge is passed on to new generations. This is a qualitative, descriptive and interdisciplinary survey, whose data collection strategies included the application of semi-structured questionnaires and collection of plants for cataloguing according to Angiosperm Phylogeny Group or APG III (2009). We identified 26 plant species, used for various purposes such as medicinal use, food, construction, craft and cultural, which were deposited in the Herbarium of the Federal University of Tocantins. Roots, stem and leaf are the plant parts most used by the community. The plants mentioned were most frequently found on the banks of the Javaés River and in the backyard of the residences. Significant traditional knowledge of these people about the plants are transmitted to new generations, through visual, orality and experimentation. Ethnobotanical studies strengthen research in ecopsychology while allowing research into the interactions between human populations and plants.

1. Introduction

The presence of plants in the most different types of environments has marked their ecological relevance for many living beings, especially for human history. In a vital area, the indispensable contribution to the maintenance of life through the supply of oxygen for many species to survive, in another utilitarian sense, its importance in culture, food and medicine [1]. The psychological sciences were not unaware of this debate, which intensified, at the beginning of this millennium, the approach to the concepts of connectivity with nature and environmental identity, very widespread in research dealing with this theme [2]. The understanding of this man-nature interaction allows us to outline the traditional knowledge that different cultural groups have about the environment and consecutively the plants surrounding them.

The variety of species that make up the group of plants constitutes the plant biodiversity, with numerous purposes that range from those used for the extraction of raw mate-

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rials for pharmaceuticals, to those that serve as essential oils, food, or teas, in addition to those used for ornamental purposes. It is worth mentioning that Brazil is considered one of the countries with the greatest biodiversity, with emphasis on the Amazon Forest [3].

In this context, which involves plant varieties and traditional knowledge, ethnobotany is included, which is characterized as an area of study that includes the relationships between people and plants [4, 5]. As well as ethnobotany, several fields of research associated with ethnobiology, ethnoecology, ethnoentomology, among others, have emerged. These areas, by using the prefix *ethno*, share the principle of reporting different subjects based on the shared vision of members of a particular culture [6].

Ethnobotany emerges as a science uniting research, analysis and popular knowledge that man has about plants. This context makes it possible to detect the profile of a particular traditional community, whit regard to uses in relation to vegetables and corroborates with the statement that the customs, beliefs and traditions of specific cultures, compose a set of information that reverberates the doings and knowledge botanical [7,8]. In this sense, ethnobotany is defined as the science that studies the knowledge and concepts developed by society about plants, encompassing both the way the social group classifies them and the purposes they give them [9].

The ethnobotany has an interdisciplinary character, linked to integration in which in practice it is demonstrated in the diversity of themes that permeate the disciplines and allow it to be studied, together with cultural aspects [10]. These ethnobotanical studies are important especially in Brazil, since its territory is home to one of the diversified flora in the world [11]. It is worth mentioning that studies in this area make interfaces with works of Psychology that contribute by subsidizing the understanding of human behavior regarding the sustainability of different living species on the planet, the valorization and exploitation of empirical knowledge of human societies, being possible to encourage the generation of scientific and technological knowledge directed to the sustainable use of natural resources [12].

This knowledge has passed from generation to generation through visual perception, being intimately interconnected with the need of peoples to apply it to their advantage, often to guarantee human survival, [13] since traditional peoples, especially indigenous people, have centuries-old skills in the handling, effects and uses of plants [14].

In this sense, studying plants, knowing and knowing their importance, is of fundamental importance so that forests are more preserved, less threatened, and the knowl-

edge of traditional people more respected [15]. It is in this direction that ecopsychology endorses investigations in the realm of understanding beyond human relationships, extending to interactions with the natural resources that make up the environment, making it possible to benefit people's physical and emotional health and strengthen their belief systems [2, 16, 17].

In this perspective, with the intention of understanding the behavior of humans on the environment, several lines of investigation are outlined from the second half of the 20th century, such as Ecopsychology, Conservation Psychology and Environmental Psychology, among others, being this one the latter, consolidated since the 1950s and necessary for understanding people's conduct on the natural physical space [18, 19]. It is in this interface that this study is inserted, since indigenous peoples are holders of knowledge, especially those associated with flora and which, over time, transmit to generation through the observation of nature and orality, being solidified as a science.

According to data from the Brazilian Institute of Geography and Statistics –IBGE [20], the State of *Tocantins* has an estimated indigenous population of 14,118 and that according to the Special Indigenous Sanitary District – DSEI/TO [21], are distributed in 205 villages, represented by 12 ethnic groups: *Karajá, Javaé, Xambioá, Xerente, Krahô, Krahô Canela, Apinajé, Avá-Canoeiro, Kanela, Guarani, Funiô* and *Pankaru*, which form an important cultural and historical heritage. The *Javaé* are an indigenous people who speak a dialectal variation of the *Karajá* language, belonging to the *Macro-Jê* linguistic trunk, and are speakers of the *Iny* language. They currently have a population of 1,515 villagers who live in 19 villages on Bananal Island and try to maintain their culture despite constant contact with non-indigenous people and contemporary technological innovations.

The object of this work is the ethnobotanical study and the traditional knowledge of indigenous people from Bananal Island. The research question is: What are, how is the knowledge of the *Iny* people about plants used and transmitted? The research aims to characterize the useful plants used in *Javaé* systems and how the knowledge about them is passed on to the new generations. This ethnobotanical study gives us a line of evidence in ecopsychology on the transmission of intergenerational knowledge of indigenous people and their belief systems.

2. Methods

2.1 Characterization of the Study Area

The research followed the methods of qualitative in-

terdisciplinary approach, with a descriptive character and was carried out from June to October 2019 with the *Javaé* indigenous people in the village Txuiri located on the Bananal Island, southwest of the state of Tocantins 52 km from the seat of the municipality of Formoso do Araguaia. The Bananal Island region comprises an area of about 20 thousand square kilometers and its latitudinal extension from the extreme north to the south, reaches an approximate distance of 330 km, dimensions that guarantee Bananal Island the position of the largest river island in the world, characterized by being a transition zone between the Cerrado and the Amazon biome, recognized for its biological diversity [22]. The village is located between the parallel 11º47'07 "S and the meridian 49º55'58 "W.

Figure 1. Aldeia Txuiri – Ilha do Bananal – Tocantins, Brasil.

Source: Google Earth / Authors collection.

The Txuiri village was established in the 1990s and currently 27 families live, totaling an estimated population of 107 people, who live in houses arranged towards the river bank. In the village it has a school, health post, leisure area with a soccer field and Aruanã house restricted to men. They are socially organized and have the chief as their political representative, as well as leaders such as the elders and ritual heads who corroborate with the community maintaining their culture through the reproduction of

their customs, typical food, traditions, crafts, rituals with songs and body paintings [22, 23].
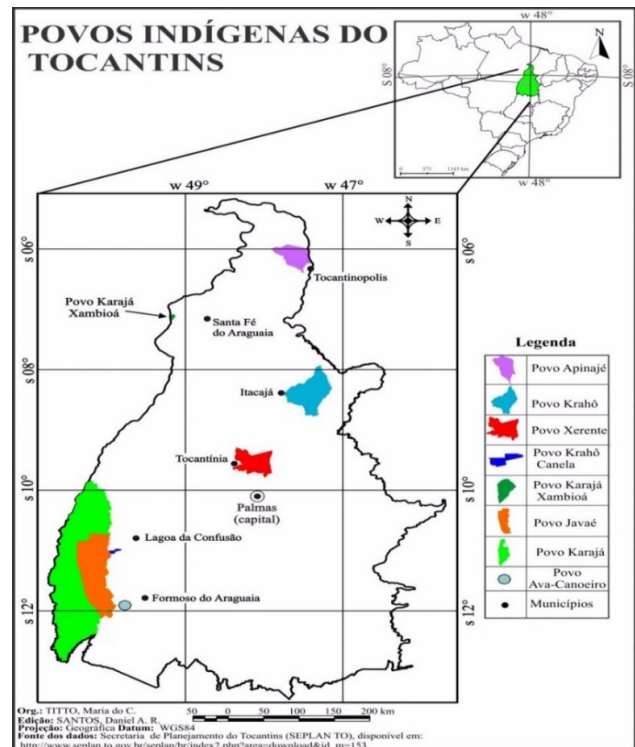

Figure 2. Location of the indigenous peoples of Tocantins, Brazil.

Source: TITO, Maria do C. (Org.) SANTOS, Daniel. A. R. (Edição)

The main economic activity is focused on agriculture where the indigenous people rent cattle pastures to farmers inside the island, the so-called 'retreats'; followed by family agriculture through small farms for subsistence where rice, cassava, corn and potatoes are planted. There are other sources of income and circulation of money from the sale of fish, handicrafts, retirement of the elderly and benefits from social programs [24].

2.2 Data Collection and Analysis

This work is a research carried out from June to October 2019, which followed the methods of qualitative and quantitative approaches, with a descriptive character, of an interdisciplinary nature. The data collection strategies comprised four procedures: construction and presentation of the research project in the village and Txuiri; submission of the research project to the Ethics Committee and data collection from daily living in the villages, application of questionnaires and collection of plants cited as useful by the indigenous people. The research was approved by the Committee of Ethics in Research of the Federal University of Tocantins Process Nº. CAAEE: 29322320.8.0000.5519 and National Council of Ethics in

Research under CAAE No. 29322320.8.0000.5519.

For the presentation of the research with the *Javaé* indigenous community, visits were made to the homes of several residents of the villages and, mainly, there was a wide explanation about the research project and its objectives, during meetings promoted by the local leaders of the villages (Caciques and elder). After being accepted by the Txuiri village, the research project was submitted to the Ethics Committee for approval.

The main collection of data took place through visits to the village. With the collaboration and authorization of the indigenous people, it was possible to carefully monitor the daily lives of the *Javaé* people, always seeking to learn through observation and inquiry. In these opportunities, we sought to analyze the conceptions and ethno-knowledge of the *Javaé* indigenous people, their life history and their involvement with the environment, especially those related to cultural activities: parties, rituals, hunting, fishing, bathing, hiking as shown in figure.

Figure 3. Monitoring and observation of the activities developed in the village Txuiri, in Bananal Island, Tocantins. (A) Preparation of hunting instrument, (B) Construction of house, (C) Purification of ornaments for ritual, (D) Collection of plants for rituals, (E) Walk and show of plants in the village (F) Fishing with hook (G) Body painting in *Javaé* boy during the rite of passage to adulthood.

Source: authors.

In methodological terms, the ethnographic method was used through the observation and interview technique, which allows a better understanding of the lifestyle and culture of a certain group [25], in which a field notebook, camera, recorder and a semi-structured questionnaire applied individually, which contained questions about the identification of plants, the purpose of consumption, how and what is used of the vegetable. As a criterion for inclusion of the participants, the minimum requirement of 14 years of age was adopted, with priority for the elderly over 50 years, called elders, because they are considered the holders of knowledge.

As not all respondents speak and understand the Por-

tuguese language well, so during some interviews a key informant who mastered the *Iny* language was present. This strategy also allowed respondents to feel more secure and confident in answering questions. Parallel to the daily observations and the interviews, the relevant information was recorded in a field notebook.

The ethnobiological method was also used using the guided tour technique used in ethnobotany to identify the plants based on the narratives and walks to the plant's location [26]. Regarding the observation and systematization of plants, the following steps were observed: 1) Collection of specimens, with the help of the indigenous people; 2) Press the samples in the field; In the laboratory, herbalized and identified according to the Angiosperm Phylogeny Group botanical classification system and pertinent literature [27, 28], in addition to cataloging and storage at the Herbarium of the Federal University of Tocantins; criteria for the construction of tables, considering the description of the collected plants, organized in a decreasing way according to the number of times they were mentioned. The names of the plants mentioned in the interviews were also recorded in the Java language.

The results from the data survey were categorized and the results were discussed according to the literature related to the subject. The response resulting from the questionnaire/interview and reports was transcribed in their entirety and the names of the participants were preserved using their initials when necessary in compliance with the ethics and smoothness of the research.

3. Results and Discussion

Fifty-nine indigenous people from the Txuiri village were interviewed, all of whom claimed to know some type of plant usefully. In total 26 species were identified, 21 of which had indigenous names from the *Javaé* system, which is a specific form of naming. The names have meanings of history lived by their ancestors, regardless of their similarities with each other. The plants of which the indigenous names were not identified most of the time are those introduced on the island due to contact with non-indigenous people (*Tori*). The information is present in Table 1.

Among the species cited as useful in the village it was possible to organize and separate them according to the degree of importance to the community, for this purpose they were grouped into five categories of uses, being: medicinal, cultural, food, ornamental and construction.

3.1 Categories of Plant Use

It was observed that 57% of the plants cited as useful in

Table 1. Plants cited as useful for the Txuiri Javaé indigenous on Bananal Island, Tocantins, Brazil. INDIGENOUS NAME; (Scientific name); (Categories: A=food; C=culture; Co=constructions; M=medicinal and O=ornamental.). (*) = Not identified. Nº= number of repetitions of plants.

Indigenous Name (Scientific name)	Categories	Part used	Preparation	Traditional use	Nº
BINIDÀ (*Genipa americana*)	A-C	Fruit, leaves and bark	Paintings, liquors and medicine	Paintings for rituals, anemia, asthma and child growth	5
WERY (*Bactris setosa*)	C-M	Fruit	Oil	Hair and wound healing	4
KỸWA (*Hymenaea courbaril*)	C-M	Fruit-Resin	Medicine	Ingestion of fruit, burnt resin relieves stinging sore	4
WAJAHATEBO (*Hymenaea courbaril*)	Co-M	Stemholes	Medicine	Constructions- Infections in uterus and ovary	4
WOKORONÀ (*Bixa orellana*)	C-M	Seed-brown	Tea Painting	Paintings in rituals, pregnant women nausea and toothache.	3
OWORUHYRI (*Copaifera langsdorfii*)	M	Seed-caule	Oil	Cicatrizant, anti-inflammatory.	3
* (*Astronium fraxinifolium*)	Co-M	Leaf and shells	Tea and medicine	Construction, Inflammations, Bronchitis.	3
HATOMOY (*Brosimum gaudichaudii*)	M	Stem Latex	Tea	Diarrhoea, Clean blood from impurities	3
ADIRÀ (*Curcuma longa*)	A-M	Rizome	Seasoning Tablets	Food - sore throat - fever, anti-inflammatory and cancer combat.	3
TỸTE (*Philodendron imbe*)	C- M- O	Cave leaves and root	Bath Tincture	anti-inflammatory, cicatrizing, muscular torsion, arrow and embiras constructions	3
* (*Bambusa oldhamii*)	C	Stem	Handicraft	Handicraft, benches, hunting and fishing utensils, houses	2
HABUNUWETE (*Anacardium occidentale*)	A-M	Fruit shells	Candy and juice medicine	Food, diarrhoea	2
IWEREHENI (*Momordica*)	M	Branches	Immersion	Itching, Mycosis	2
ORIXY (*Curatella americana*)	C	leafs	Handicraft	Nail and foot sandpaper, pot cleaning	2
KODWOVDI (*Protium heptaphyllum*)	C-M	Leafcut	Tea resin	Glue, waxing, stomach pain.	2
WAIABA (Psidium guajava)	A - M	Leafy-brown	Tea candy	Feeding, the leaf is used for hair loss and the sprout for tummy ache	2
MỸKA (Anacardiaceae)	A-M	Fruit Leaf	bath	Bad digestion, tummy ache, yellowing	2
ASILYNYRE (Cymbopogon citratus)	M	Leaf	Tea	Fever, flu	2
HELÃKÃREOHUTI (*Melissa officinalis*)	M	Leaves and stem	Tea	Fever, flu	1
*	M	Leaf	Tea		1
* (*Allamanda cathartica*)	O	Flowers	Plantation	Ornamentation	1
* (*Sesamum indicum*)	M	Leaf	Immersion	Stomach pains	1
* (*Dracaena trifasciata*)	M-O	Leaf	Tincture	Muscular pain	1
KOTERUTINI *	M	Root	Tea	female infertility	1
TXUKODE *	M	Root leaf	Tea	Hair left over	1
SESETI *	M	Leaf	Tea	Thrush	1
YRYHÀ *	M	Root leaf	Tea	Vomit	1
(*Jatropha mollissima*)	M	Leaf	Tea	Vermifuge	1

Source: autores

the villages had a medicinal category. From these results it is possible to see how important the use of plants for therapeutic purposes is in traditional indigenous communities. This inferred the importance of the so-called traditional knowledge regarding the indications, contraindications and dosage. The figure of the shaman, as a connoisseur or "sole holder" mentioned by the *Javaé* people, is of fundamental importance, since he is responsible for the primary treatment of diseases in the villages, and in the second case they resort to hospitals. The medicinal category was also the most frequent with regard to the use of plants, among indigenous people from the Guarani ethnic group in previous studies [29]. Other ethnobotanical studies carried out in traditional communities have revealed and verified the extreme medicinal importance of plants used in the treatment of various diseases [30, 31].

The second category of use with 19% refers to plants with cultural purposes that are present in religious rituals, parties, body paintings, crafts with the making of necklaces, earrings, bracelets, bags and ornaments in general, and in the myths they have a strong connection with its origins, through stories of stories about plants that reveal the symbolism of the *Javaé* indigenous culture.

The plants used in food presented a smaller number of citations with 12%, which differs from studies carried out with other indigenous communities where in most cases the food category is the most frequent. An ethnobotanical study in Xokleng indigenous villages in southern Brazil found that most cultivated plants have a utilitarian aspect for food purposes [32]. A possible explanation for this result obtained with the *Javaé* indigenous people of the Txuiri village on Bananal Island is the proximity of the village to the urban area, possibly the indigenous people end up opting for the consumption of industrialized and easily obtained foods, even producing on their lands what is necessary for your survival.

The categories with the fewest mentions were the ornamental ones represented by 7% of the citations, used to beautify the environment around the homes and to decorate the places where the festivals and religious rituals are held. The category dedicated to the construction of residences and hunting and fishing instruments with 5% includes the plants used in the construction of houses and hunting and fishing tools.

It is noted that due to the cultural issues that involve local indigenous communities, it is possible to obtain diversified information. In the stages of characterization and analysis of the use of plants, it was necessary to expand the data obtained in the application of the questionnaires. In total, 28 species of plants were identified, however, a given plant had multiple uses for use that were counted in-

dividually, thus increasing the number of citations regarding the categories of use, however, the number of species remained the same.

It was noticed that a given plant has several utilitarian aspects. At the same time that they are considered food, they also have medicinal content and cultural value. As an example, *Anacardium occidentale* (Cashew), in which the fruit is used in food for the preparation of sweets and juices, and its peels (stem), has medicinal importance, serving to prepare bottles in the treatment of diarrhea, presenting in this case two categories: food and medicine. *Astrocaryum campestre* (known as Tucum) has a cultural importance for the *Javaé* Indians, who through a long and laborious process done exclusively by the women who extract the oil, a purifier of the clothes that are used by the boys in the ceremonies of the passage ritual is used that consecrate them to adulthood from the age of 14. The oil is also used as a beauty product to maintain hydration and the vivid color of women's hair. It also has a medicinal value for this indigenous community used in the treatment of wounds acting as a healer and in the relief of snake bites. Tucum presented two categories of usefulness, cultural and medicinal.

The *Americana Genipa* (known as *Jenipapo*) is strongly linked to *Javaé* culture, from the fruit is made of body paintings that symbolize various meanings. These paintings are prepared mainly during the festivals in the local villages or the surrounding villages. They present medicinal value through the use of liquors made from the fruit, which serves for the treatment of anemia. The fruit is also used in food, and according to oral reports from the indigenous people, the grandparents prevent children from using jenipapo in food, because they believe that this leads to premature aging "*if you eat the ripe jenipapo the skin becomes full of wrinkles like jenipapo when this child becomes adult*" (R.T.J, 2019).

From the bark and between the bark of this tree, a bath is prepared for newborn children, which is sacred for the *Javaé* and assists in physical development regarding height. With this information it is possible to observe that the plants have multiple uses in the *Javaé* indigenous cultural universe. It is noted that the knowledge about the use of plants and their effects on health and daily life, are related to culture, cosmology and involvement with the environment, a fact that also allows and sustains the communication / interaction between people and plants by through shamanic knowledge [33].

However, some species of plants fit only into a single category. For example, we have the Melon of São Caetano, o (*Momordica charantia*) which is useful only in the treatment of itchy and mycosis on the skin. Another ex-

ample that can be mentioned here is the Dedal de dama or (*Allamanda catartica*) a plant that for this community is considered toxic, however, its only purpose is ornamental, they are planted around indigenous homes and their flowers make the environment more pleasant. According to the results obtained, the way of preparing the plants showed differences according to their indications for use.

3.2 Most Frequent Preparation Modes

As for the ways of preparing the plants in the village Txuiri, the use of tea stands out with 34%. The parts of the vegetable are put into the water to boil and then it is ingested orally. A similar result is observed in an ethnobotanical study conducted with indigenous people of the Kambiwá Ibimirim ethnic group from Pernambuco, northeastern Brazil, where it was found that the most frequent mode of use is characterized by tea and its consumption [34].

Another form of preparation represented by 14% of the quotations is the medicine known as *garrafada*, in which the shells or between shells are removed from the plants through cuts in the stem and after drying they are placed in containers with water or alcoholic beverages until they present a change in color, being ready for ingestion. The form of craft preparation with 12% of the quotations includes the use of wood for the construction of houses and hunting and fishing equipment such as canoes, oars, bow, arrows, spears, sticks and bordunas.

The immersion-maceration (8% of the citations) is when the parts of the vegetables are macerated and then immersed in hot water without it continuing to boil. The preparation of sweets and juices of vegetable origin with 6%. The bath represented by 4% of citations shows that the parts of the vegetables, whether leaves, peels or roots, are put in water to boil until they get a darker color and after cold used for the bath. The tincture (4% of citations) is made by the removal of parts of the leaves and roots and then immersed in a container with alcohol until a darker color is obtained. This liquid is applied externally in desired locations, serving for inflammation and muscle pain.

The preparation of the body paintings (4% of the citations) begins from the collection of the fruit of jenipapo still green a task exclusively male, then women grate the fruit that is then expressed until obtaining a liquid, and to finish the preparation is added charcoal and waits until the achievement of a darker and more consistent texture, is applied to the skin in forms of drawings that have cultural significance for the *Javaé* people. Initially the paintings on the skin are light colored and only become darker the next day, the paintings last for about a week. For the painting made from the annatto, the seeds are collected and rubbed

in the hand until they present an orange color, which is then applied to the skin in the shape of strokes with indigenous meanings. Usually the painting with Annatto lasts from one to two days; its resistance is lower when compared to painting of genipap.

Figure 4. Preparation of paintings in the *Javaé* indigenous community of the Txuiri village on Bananal Island, Tocantins, Brazil. (A) Urucum seeds to be macerated (B) Mass expressed from the fruit of Jenipapo with coal dust.

Source: Authors.

The fruit of the Jatobá (*Hymenaea courbaril*) together with the resin on its stem are collected and burned until they become a powder texture that is used externally at the stingray sting or snake bite, in order to relieve pain. The oils (4% of citations) are extracted from the seeds through exclusively female techniques served as a natural repellent. The liqueurs (2% of citations) are prepared by collecting the fruit of the ripe genipap (*Genipa americana*), from which it is exclusively handled by women where they wash, peel and cut into pieces that are placed in a container to which "cachaça" is added - drink alcohol, leaving this container in a cool place for a period of approximately 20 days. After this period, the liquid in the container is filtered and the fruit pulps are discarded and add syrup with sugar and water to the liquid, and after a period of approximately 15 days the liquor is ready for consumption. Thus, the preparation, handling and use of plants, expresses the way they manifest and establish their relationships culturally, spiritually or socially with vegetables, thus ceasing to be a specific activity of the shaman, but that extends to everyone with specificities different [17, 33,35].

3.3 Parts of the Plants Used in the Txuiri Village

Regarding the use of the plant parts mentioned by the research participants, he highlights the use of leaves, with frequency equivalent to (36%) of the mentions; stem (16%); roots, branches and rhizomes (13%); fruits (11%); peels (9%); buds and flowers (7%); the use of seeds, latex and resin showed a less expressive frequency that corresponds to (4%) in the citations. These results reveal the utilitarian and cultural importance of plants among the *Javaé* indigenous people and show that different parts of the

plants are used for different purposes, with evidence for the use of leaves. In an ethnobotanical perspective with an approach to medicinal plants, a study carried out in a traditional community of fishermen and rural workers in Bahia, northeastern Brazil, demonstrated similarities, with emphasis on the use of plant leaves [35].

Among the plants mentioned by the participants, include trees, shrubs and herbs. With regard to native plants, approximately 68% of the identified species are exclusive to the region, for example *Astronium fraxinifolium* (Aroeira da Mata), which has medicinal value in the treatment of coughs, inflammations and bronchitis, also has a utilitarian aspect in constructions by means of wood extraction. Some examples of native plants are Astrocaryum campestre (Tucum), *Genipa americana* (Jenipapo), *Bixa orellana* (Urucum) and *Protium heptaphyllum* (Amescla), *Brosimum gaudichaudii* (Inharé da mata), and *Maclura tinctoria* (Moreira).
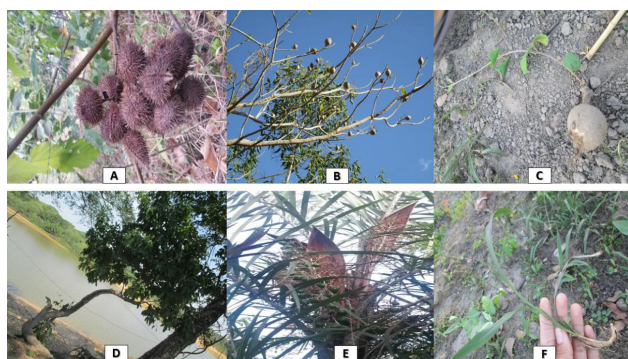

Figure 5. Native plants in Txuiri village on Bananal Island, Tocantins. A) *Bixa orellana* L. (Bixaceae) (B) *Genipa americana* L. (Rubiaceae), (C) (Malpighiaceae) Juss. (D) *Protium heptaphylum* Aubl. (Burseraceae) (E) *Astrocaryum campestre* Mart. (Arecaceae) (F) (Poacea) Barnhart.

Source: Authors

About non-native plants, about 32% of the identified species are introduced in the village, that is, they come from other places such as *Sansevieria zeylanica* (Espada-de- São-Jorge), *Allamanda cathártica* (Dedal de dama). One of the possible explanations for the insertion of exotic plants is due to the presence of non-indigenous people who also live in the surroundings and do cultural exchange. The introduction of plants from another location, mainly medicinal plants grown in the backyards of homes, is most often carried out by women who do not always have the habit of entering the forest to harvest [35,36].

3.4 Distribution of Plants Cited as Useful in Villages

Regarding the life habits of the identified plants, there

is a predominance of trees (39%), followed by herbs (22%), herbs (18%), shrubs (14%) and creepers (7%). It is observed the places where it is possible to find the most frequently identified plants correspond to the backyards of the residences (36%) followed by the banks of the Javaés River (32%). The plants with characteristics of the riparian forest (11%) were mentioned a few times by the indigenous people. It is possible to notice that the most used plants are characteristics of places where there is an easier access preferably near the residences. Possibly these indigenous do not enter closed forests to discover new plants because they find what they need nearby.

Another factor worth mentioning in the *Javaé* culture is the Aruanãs (Ijasò) festival, which consists of a ritual of passage and according to oral reports by the indigenous people; they are spirits that leave the bottom of the river to visit the villages. Men participate more actively, hiding the whole body under made-up ornaments, leaving only the feet and hands exposed and dance their ritualistic songs in pairs. The plants are also useful, as their props and adornments are made from buriti and babassu palm leaves. The women participate in the party, however, submissively, they are not allowed to talk about the ritual or go to the Aruanãs' house.
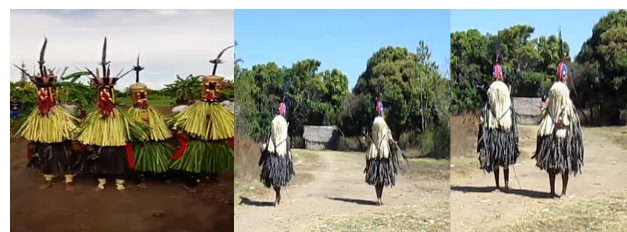

Figure 6. *Aruanãs* Festival (*Ijasò*) in *Txuiri-Hinã* village

Source: authors

Due to the dry season, some of the plants mentioned could not be collected, but were mentioned as important. Macaúba (*Acrocomia aculeata*), corn (*Zea mays*), sweet potato (*Ipomoea potatoes*) and cassava (*Manihot esculenta*) are used in food and are important ingredients for the preparation of "calugi" - a typical indigenous drink. For its preparation the rice is cooked with water added to ingredients such as sweet potatoes or corn that are cooked until they have a homogeneous texture, the drink is served in small bowls built and personalized with symbols of the *Javaé* indigenous culture, the pepper (*Capsicum frutescens 'Malagueta'*) named (*Kaxiwera*) in the *Iny* language, it is used exclusively by singing men and warriors so that they have a deep and beautiful voice, it is also indicated to avoid hoarseness, increase strength making them stronger and more resistant. The nuts or nuts of the babassu palm (*Attalea speciosa*) are collected and macerated without

adding water and then placed on the spine of children, especially newborns. Culturally, this ritual is associated with aspects related to the child's healthy growth.

It is possible to observe the traditional knowledge about the use of plants through some oral reports: "*The ancients used the monkey pepper (Kaxiwera werehe) macerated in the corner of their eyes so as not to go blind and clean their eyes*" (R.T.J, 2019).

In the *Javaé* culture, children and adolescents are prohibited from consuming cassava mass (*Manihot esculenta*), as in adulthood this will make ejaculation more delayed during their sexual relations, and according to an indigenous teacher: "*a man has to ejaculate quickly [...]. For the child to stop peeing in the hammock, they feed on the turbot "(typical food using the base of the cassava dough) and pass on the child's abdomen in the lower abdomen*" (R.T.J, 2019).

With the advent of contact with non-indigenous society promoted by public policies, the Tocantins State government implemented a bilingual school in the Txuiri village, which is called Txuiri-*Hinã*. The teachers work with the subjects of mother tongue (Iny), arts, culture and cosmology among other contents that approach subjects peculiar to their indigenous culture. In the initial series the only language taught and *Iny* favoring the *Javaé* culture, in the more advanced series, the second language taught is Portuguese, but in a more superficial way, learning only the basics. Indigenous education is one of the instruments in the process of strengthening the culture, beliefs and customs of indigenous communities.

In a dialogue and interview with a teacher, it was possible to realize the importance of the school in the process of strengthening and transmitting traditional indigenous knowledge about plants. In one of our meetings the teacher mentioned that:

"*The school receives an elder who teaches about the plants, what they are used for and how they are prepared. For fear of losing the indigenous culture, the school together with the villages began to work on this knowledge and little by little the interest of the new generation in learning about the plants is emerging*". (R.G.,2019).

Regarding the traditional ways of transmitting cultural knowledge about plants, the *Javaé* indigenous people value the empirical knowledge that is transmitted from the triad: visual through observation (looking) through orality (speech) and experimentation (doing). On the other hand, children and adolescents experience the rules imposed by the formal education of the learned in the school of the non-indigenous, based on the written record, in systems of evaluations, charges and pedagogical strategies [37]. In view of this duality in how learning takes place, traditional knowledge related to vegetables and which are linked to their beliefs and cosmology persist.

Another relevant peculiarity in the *Javaé* culture is the role of maternal and paternal grandparents, who during childhood are important and striking figures responsible for the training of grandchildren, which consists of traditional preparation and care ranging from teaching how to walk, their myths and games indigenous people, teach how to be a good hunter, fisherman and have good character. Indigenous peoples have knowledge about the environment and pass it on to their generations. This empirical knowledge from the observation of the natural world is present in different cultures and is transmitted to their descendants [38].

The elders mentioned the loss of some of the traditional knowledge with a certain concern and feeling of sadness, affirmed that many of the indigenous cultural practices are in disuse or have fallen by the wayside in the current context that, according to them, cause a "weakening of the culture". "[...] *many things only some older people who still know and use*" [...] *today, young people do not have much interest and curiosity to learn these things from the Indian*" (S.J, 2019).

Among the *Javaé* people, knowledge is transmitted within their own culture, sometimes in a more restricted way, with care being taken to preserve their doings and knowledge. According to the statements below, it is possible to perceive the concern and care of these people in preserving their knowledge:

"*There is a plant near Aruanã's house that prevents pregnancy, it is like a contraceptive. Only I can't go and get it, then I ask my father to get it*". (J.W, 2019).

"*There is a plant that is used for hair removal in the bush, and then I'll show you. There are things here that an Indian cannot tell Tori (not an Indian)*". (J.W, 2019).

In this research it was verified the importance of the traditional *Javaé* knowledge in the face of the local biological diversity. There is a need for further studies on plants with indigenous communities. Although research on the topic tends to expand, publications associated with plants and cultural diversity are still not very significant in psychological research. Indigenous interactions with the natural world and the belief that human beings are part of nature demonstrate how other cultures, individuals and nations can implement policies that address ecological crises. Based on the biological sciences, research in ethnobotany contributes to promote a responsible relationship with nature in order to avoid, or at least mitigate, social and environmental impacts [2, 8, 30].

It is also worth mentioning the contribution of ecopsychology, by enabling discussions that address emerging

issues such as those associated with environmental problems arising from the way different cultures think and behave in the natural environment. Traditional indigenous ecological knowledge shows us a way to care for the environment, based on traditional science, cosmology, connection and reciprocity with natural goods, serving as a model of conservation, in times of current environmental and health crises [38].

4. Conclusions

The present study made it possible to survey the main useful plants in the Txuiri village, in the categories of medicine, culture, handicraft, food and construction use. It was found that tea stood out among, those of more constant daily use and the parts of the most used plants were characterized by the use of leaves. These plants are usually near the homes, thus facilitating their collection for use.

An ethnobotanical study was carried out of 28 plants in which the existence of external species such as those ornamentals introduced in the village was verified, however, the number of native plants used in the daily life of this ethnic group stands out. From the indigenous reports it was possible to identify the plants in the *Javaé* system, and the collection of plants allowed the cataloguing of 28 plant species of diversity and constant use by the community.

It was also observed that in the universe of traditional knowledge, which often seems to be mere belief and not scientific for a non-indigenous researcher, the *Javaé* people conceive as their "science", coated with beliefs, values, and meanings that are configured with the interaction of social, cultural and environmental practices as a whole, favoring the relationship man / nature / culture. In traditional indigenous communities, cultural knowledge is created, valued, preserved, and its ethnoconnections are transmitted from the experiences lived orally and visually over time to the new generations.

Finally, it was noted that these communities address several environmental issues, such as the preservation of nature, including the benefits of plants. Faced with the results it was possible to understand the resistance of the indigenous people of these communities in maintaining the culture, even in the face of the influences of non-indigenous people. The concern and effort of these people, in cultivating and maintaining their traditional knowledge passed from generation to generation, was then verified. This study contributes to the development of research in ecopsychology, based on the data obtained from the intercultural experience with the *Iny* people, the sharing of indigenous ethnobotanical knowledge, respect for culture, the unconditional lesson of the experience and ecological value of each species on the planet.

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REVIEW

Remote Working in the Period of the COVİD-19

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ABSTRACT

Working remotely was an option for the employees before the Covid-19 pandemic. However, it's become a new working format and compulsory for the white collars to work at home. Even if it seems attractive at first look, the new format of working style actually has caused lots of problems especially on employees' mental health. The social life, private comfort zone, and working environment of the workers have mixed with each other and the equilibrium among them which gave certainty and predictability is totally broken now. Actually, the employees started to search for a new normal and balance in the pandemic. I am planning to focus on occupational stress that popped up in the pandemic with regard remote working. It is structured to focus on the problems which are the broken balance between work and family, the problem of workload and over-working, the future ambiguity about the career, and miscommunication, to analyze how these problems bring out mental health disorder with giving experiments done by other researchers. In the final part, I will try to give some suggestions on how to get over it or reduce it.

1.Introduction

The World Health Organization-WHO (World Health Organization-WHO) named the disease caused by the new coronavirus that emerged in Wuhan, Hubei Province in China in December 2019, on February 11, 2020, Covid 19. The same organization declared COVID-19 as a pandemic disease on March 12, 2020, citing the speed and severity of the virus and the authorities' failure to take the necessary action. The Covid-19 virus which affected the whole world made a great impact on our living and working habits. Since the World Health Organization declared Covid-19 a pandemic, hundreds of millions of people started to work at home remotely. This massive and sudden change affected people's life a direct and indirect way.

Working remotely was an option for the employees before the Covid-19 pandemic. However, it's become a new working format and compulsory for the white collars to work at home. Even if it seems attractive at first look, the new format of working style has caused lots of problems especially on employees' mental health. The social life, private comfort zone, and working environment of the workers have mixed and the equilibrium among them which gave certainty and predictability is broken now. Work related issues cause occupational stress. Occupational stress is a chronic condition that let the employees feel alone and helpless about their work. Occupational stressor feel that they cannot control the work and the worker realizes he/she is not fit this job [1]. Person-environment fit theory explains occupational stress in detail.

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Person-environment theory emphasizes the combination between person and job. There are demands for both job and worker. Person's attitude, ability and interest match with job demands, and it creates motivation and vital benefit for both. At the same time, job factors satisfy the person's expectation, so motivation and development occur. On the other hand, job demand and person's expectation did not fit with each other which would causes occupational stress. Employees would feel depressed and their psychological and physical well being would also be affected negatively by this condition [2]. During pandemic, workers and job demand mismatch each other. This situation causes demotivation and unprofitable work.

What kind of challenges triggered by the stress on workers during the pandemic? For finding the answer of this question, we applied an experiment had been done by other researchers. Researchers want to know what kind of challenges the workers encounter during the Covid 19 outbreak which causes occupational stress and worker's psychological well-being. There were 39 participants participated in the experiment done in mid-February in 2020. 23 of them are female, 15 of them are married, 18 of them have different responsibilities without work. Researcher interview each of the participants separately through WeiChat application. Each interview took an average 15.62 minutes. All participants were working from home at least 3 weeks. Findings of the experiment indicate that promote working causes challenges which are work-home conflict, ineffective communication, procrastination and loneliness [3].

There is another empirical study that done in May in 2020. The hypothesis is affecting of occupational stress through remote working on psychological well being of employees during Covid 19 pandemic in India. The study used the shortened version of the psychological well-being scale that developed by Ryff and Keyes. The result of study shows that there is no clear age and gander group differences, but remote working brings the challenges for employees because of workplace isolation, family conflict, working instability. Based on the consequences of these experiments and literature review, remote working trigger the challenges, such as conflict between work and family, overworking, future ambiguity and loneliness. These issues affect workers' psychological well-being in negative way [4].

2.Conflicts between Work and Family

Work-family conflict is one of the phenomena that hard to avoid in modern society. Because work expectation is much higher than ever before all around the world. However, workers already have adapted fast paced life. They are also attempting to arrange flexible work arrangement which corresponds their working locations and work hours with lifestyle, care and professional development. Before pandemic, people work in the work environment and work place. After work, they come to home and relax, rest, spending time with family members. But this sudden change exacerbated work- family conflict.

Fist problem of work-family conflict is role ambiguity. Individual has different roles in normal life. For example, a person can be a worker, father, husband and son at the same environment and at the same time. According to a national survey that followed Canadian workers, work-family conflict increase the family which has children with age of 0-12 years more than the family without children during the pandemic. Especially, working mothers have experienced greater challenges [5]. Moreover, worker not only adapt full-time job from home, but also care children who study full-time education from home and extended family.

The second problem is wrong expectation from family members. Every work has its responsibilities and difficulties. In this circumstances, some people get motivation from their colleagues, because they are living in the same situation. Sharing similar feeling, reduce the stress. Remote working deprive workers from colleagues, so workers expect to their family members to understand working stress and being colleagues. If their expectation is not met, they are frustrated and dissatisfy.

The third problem is avoiding family members. Human is social being. People all need social life. Everyone needs family support and spending time with family. Nevertheless, sometimes people also need to spend time with alone, especially adolescents and young adults. From the morning until night, everyone is at home, so it is hard to find some space and time get along with him/her self. Most parents did not understand their children's need and judge them avoiding the family or dislike family member. All those problems lead the worker to stress. I will explain stress end of the article.

2.1 Workload and Over-working

Generally, employees start work at 9 in the morning. They have lunchtime and continue to work until 5, 6 in the afternoon. Their work and break time separate each other. They arrange their tasks based on their time. But in remote working, their office is next door, so if employees do not manage time well, they face workload. People who are procrastinators experience trouble with over- working.

Some people be obligated to work more than their work hours. For example, teachers teach online courses.

Parents and students face any kind of problem about class, the internet, and technology, so they are directly connecting with teachers. School administration gave parents the right. Furthermore, employers require the employee to work harder than before. Most labor marketing encounters an economical crisis, so they want employees to work harder for improving their revenue and get rid of their problem. Speaking in a video conference with CHP Istanbul Provincial Chair Canan Kaftancıoğlu, members of the Plaza Action Group complain that their bosses load up works on workers [6]. They are worried that this situation will continue after quarantine and require the government to control this kind of issue happen between employers and employees. All these kinds of difficulties make people feel over-working.

2.2 Future Ambiguity about the Career

Future ambiguity and uncertainty are all-around people. When will end up the Coronavirus, when will open schools, when will open countries' borders? There is no specific answer for them. Besides this, the defeat of the pedantic cause of many businesses, so some employees lost their job. Some are worried about losing job and face "what -if" question.

According to Abraham Maslow's self-actualization theory, self-actualization is a higher level of human motivation. People can discover their ideal self in this stage, utilize motivation with their capacities and abilities. But before the highest level, people have to fulfill and let other needs be met. The first level is physical needs. People need nutrition, settlement, and dressing. If someone hungry, she/he cannot concentrate on other kinds of stuff. If the first stage is fulfilling then people need the second stage. The second level is safety needs. The person who is homeless wants a home, safety, and not it does not matter. But the person who can achieve their basic need and think about safety. The thirst one is belongingness and love needs. Belonging to a city, home and time is very important, according to psychology, belongingness is the source of happiness. Love also can be a source of life and meaning of life. The person feeling belongingness to society and need acceptance then the person can achieve self-actualization level [7]. In this stage, people develop themselves, discover their ability, and tend to contribute the society and their field in major. Future ambiguity affects safety and belongingness negatively and causes decreasing employees' motivation. At the same time, decrease working efficiency. There is a mismatch between employers' expectations and employee's working, so this can create many misunderstandings and difficulties.

2.3 Loneliness

Governments encourage people, even impose a curfew all around the world. Employees deprive working environment plus nature as well so the radical departure causes loneliness and social isolation. The working environment is a very significant source of socialization. People deprive the opportunities. As every year, there are big holidays, like Eid, Christmas. People visit their parents and relatives. But because of corona-19 limit people to communicate with others. Western people have an individual life. The big holiday is a golden time to visit and travel, so this depravation gets workers' mood worse. Moreover, lack of communication with others leads people to miscommunication and decreases their communication skills.

Remote working causes many disadvantages for people. Getting used to new conditions, fix up the affairs, and managing working hours takes time. But coping with the problem like the conflict between families, over-working, the future ambiguity about the career and loneliness not easy. If people cannot handle them on time, those difficulties exacerbate and cause chronic disorders like depression and anxiety.

These challenges cause occupational stress. Occupational stress is chronic condition that workers feel unsuccessful on their job, the emotional instability. Because of this condition, work effectiveness would decrease. Occupational stress can cause serious mental disorders, such as depression and anxiety disorders.

2.4 Depression

Depression is one of the common and serious psychological illnesses that influence a person's feelings, way of thoughts, emotions, and interests. A symptom of depression differently based on mild, moderate, and severe levels, but common symptoms are feeling sad and depressed, losing interest in activities, the problem with sleeping and quality of sleep, difficulties with concentration, increasing thoughts of death or suicide. At least five symptoms happen last two weeks and continue to change the individual's previous self and then the person can be diagnosed with depression. According to the American psychological association's report about depression, generally, one in 15 adults experience depression in any given year that women are more likely to experience depression than men. Several factors play a significant role in depression. They are biochemistry, genetics, personality, and environmental factor. As I mentioned above, if employees cannot handle their problems, environmental factors can lead them to experience depression. Depression causes physical problems like fatigue and lack of energy, decrease actions

and speech, discomfort in the back, headaches, and unexplained restlessness [8]. It affects mentally like decreased ability to focus and remembering. Lost interest, being pessimistic, uncontrollable emotions. It can get worse and hugely negatively affect normal life even sever level it leads individual looking death and suicide.

2.5 Anxiety

Anxiety is a normal feeling that responds to bodies' stress and worries about the future. It happens before the interview, presentation, the first day of work, and so on. If anxiety is normal, it helps people to prepare and complete their tasks well or encourages them to do their job on time. But it happens at an extreme level and continues for several months. It becomes an emotional disorder that affects at any age.

There are many types of disorders. Common types of anxiety disorders are panic disorder, phobia, social anxiety disorder, obsessive-compulsive disorder, separation anxiety disorder, illness anxiety, and post-traumatic stress disorders. Every type has a common and different symptom that levels are different depending on mild, moderate, and severity. People who experience anxiety have nightmare, painful thoughts and memories, fear of specific events and places that they cannot control or stop it. Anxiety disorder affects people's normal life. Some clients cannot control their emotions in public places, so encounter problems. Genetic, physical, and also environmental factors can cause anxiety disorders [9].

From the problems I mentioned above, I could implement a general theory of depression to the remote working in pandemic cases. The conflict between work and family case. A person works and lives in the same area that there is also another member of the family. The person has other roles as well, so the individual cannot manage all this stress and the environmental factors trigger depression. Depression affects a person's physical and psychological well-being. The second problem is workload and overworking. Generally, people's body function gets used to one rhythm about working. For example, some people cannot sleep late at weekend. Because they wake up five days a week at the same time, so the body already wakes up in its time. After 5,6 in the afternoon, the body also ready to leave work and rest at home or be busy with other stuff. Suddenly, employers expectation increase or working time is irregular, the person easily feeling depress and decrease interest in work.

Another problem is future ambiguity. Future ambiguity always makes people think about the future and worry about it. There is not certain date or answer to their question, they began to think negatively and learn help-

lessness will occur. Learning helplessness is a state that happens after experiencing negative thoughts or stressful and uncontrollable situations repeatedly. The last problem is loneliness. Nowadays, especially in European society proper live alone. The way to be socialized and share express emotions and stress in a workplace with colleges and friends, so people deprive this opportunity, it makes them depressed.

I want to implement anxiety to those problems about remote working during the Coronavirus pandemic. The first problem is a conflict between work and family. Family members spend all their time every day. There are students and workers among them, so children get used to it and do not want to separate from their parents. Furthermore, because of depression, workers become more sensitive. The second problem was over-working and workload. For anxiety, the client cannot concentrate easily. Think very detail and do not want to make the employer upset, so the employee faces challenges. The third problem is the future ambiguity and uncertainty about the career. Without anxiety, people suffering from this uncertainty in a pandemic. When will the Vitus end up, when the school and work continue as normal, what will I do if I am infected with a virus. What should I do if I am to be fired. For a client with anxiety do not get rid of these questions.

The last problem is loneliness and isolation. Types of anxiety have common problems which avoid the public area and communicate people. The loneliness and isolation exacerbate the situation. Because of virus, people cannot list each other easily. Also, there is a curfew in many countries. If there are opportunities to communicate with people, the person who experiences anxiety can avoid communication. Decrease communication skills, so while conversation, the person can feel uncomfortable.

3.Discussion

Covid-19 is the inescapable fact that all countries experience the pandemic and outbreak period. Some occupation continue to work in workplace but there are still many occupations which continue from home. Over the year of this process, people accept and adapt to work remotely. There are experimental researches that prove the positive effect of remote working on employees. Remote working brings flexible life style for workers. If the workers keep the balance, then they can gain extra time for relaxing and flexible work environment. However, human being is social being. We need communication, support and working environment which motivate us, so people cannot adapt remote working in the beginning of pandemic. Loneliness, mismanagement, conflict and future ambiguity are hap-

pening in worker's life and they cause occupational stress. If they cannot control their stress level, then the stress affects workers' well being and can cause mental health disorder like depression and anxiety.

Several tips can prevent that problem or can solve some of them. The first tip is doing exercise. During a pandemic, gyms are not open, so employees can try to continue to exercise at home as much as possible. Exercise her brain to improve its functions. The second tip is eating healthy. Nurture with green foods like fruits, vegetables. People who experience depression's appetite affected, so always delay eating time, and give change for depression to affect physical health, so eating healthy and on time is very significant. The third suggestion is organizing an online meeting with friends and colleagues, and sharing experience and express the difficulties because sharing sadness and feeling with others, decrease the stress.

Another tip is to think rationally and try to accept the reality. Covid-19 and working remotely did not change one person's life. The virus affects all the world. No one did not face the influences of the virus, so the person who we can think does not have a better life condition. Think positively, read and watch positive things which can help people to get rid of the pessimistic thoughts. If employees cannot handle the problem, they should seek counseling and a psychologist to professionally helping them.

4.Conclusions

Sometimes unexpected reality can happen in life, neutral deserter, illness, and war. These factors are disturbing normal orders and daily faction. Covid-19 pandemic happen and change lifestyle brings huge life changes. Before remote working is an option for many people who prefer to work from home, but during a pandemic, remote working is no option but it is obligatory for many employees all around the world. There are some advantages of remote working maybe, such as people who work very far from their home or work in tough conditions. However, people also experience difficulties during the macro crisis. Everyone has different roles. Remote working brings together all roles for a person at the same time. A father has to work and being a father in a small area. A mother is also a worker and a mother at home. Education is from home, so people have problems to organize and keep a balance between these roles. This problem causes conflict between family members and between work and the family. Workload makes workers extra tired. Future ambiguity also demotivates people and decrease the interest of work because employees encounter the question like "if

the company demolishes, what should I do". Feeling isolated and living alone trigger accumulated problems. All of these problems can cause psychological disorders like anxiety and depression. If an individual cannot handle it on time, it causes psychical and serious mental problems. Even lead to suicide. Exercise, health nutrition, utilize online course, arrange a meeting with friends, empathize with other people who have the very hard condition. There are still some serious problems, so the person has to apply for psychological support.

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