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EFFECTIVENESS OF THE UPTAKE AND IMPLEMENTATION OF AN ABORIGINAL AUSTRALIAN EMPOWERMENT PROGRAM IN THE CONTEXT OF PUBLIC HEALTH TRAINING IN PAPUA NEW GUINEA

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ABSTRACT:

An initial collaboration between Australian and Papua New Guinea (PNG) researchers established the suitability of the Aboriginal Australian Family Wellbeing empowerment program (FWB) in University of Papua New Guinea (UPNG) public health training. This study seeks to determine the effectiveness of program uptake and implementation by the PNG partners. A total of 30 students in the UPNG participated in 40 hours of FWB. Qualitative workshop evaluations were compared with those of the initial study. Quantitative pre and post surveys measured students' initial and subsequent sense of wellbeing in three areas. Local uptake and implementation were effective: UPNG partners from the initial pilot facilitated the FWB program in their own right and achieved similar results. Students found the FWB content and delivery highly relevant and empowering. They reported enhanced capacity to improve their own wellbeing and help others to do the same. Quantitative results showed minor improvements, or deterioration, in reported wellbeing, arguably because post-intervention data were not collected immediately after training but rather at different times. Despite this, the study highlights the need for appropriate and well-tested quantitative measures and dedicated research funding to improve the evidence-base for social health interventions such as FWB in the PNG context.

Keywords: Empowerment, Family Wellbeing program, interpersonal violence; program transfer; self-reported wellbeing measures; student/military confrontations

INTRODUCTION:

The transfer and implementation of acceptable and effective health services and programs across settings provides an important and potentially cost-effective strategy for promoting health and wellbeing, especially in resource-poor countries [1]. It is important when transferring programs and services from one context to another to monitor and evaluate their acceptability, effectiveness and sustainability over time. This paper builds on a partnership between Australian and Papua New Guinea researchers designed to explore the transfer and implementation of an Aboriginal Australian Family Wellbeing empowerment program to Papua New Guinea (PNG) settings [2,3].

The Family Wellbeing (FWB) program is an evidence-informed group intervention developed by Aboriginal Australians to enhance their collective capacity to negotiate a constantly-changing and uncertain world and the problems associated with being a minority population in their own country [4, 5]. The premise of the program is that there are no easy answers or readymade templates for dealing with complex, so-called 'wicked', problems such as the legacy of colonial dispossession, racism, discrimination, poverty, intergenerational trauma, interpersonal violence and substance abuse. The creators of FWB sought to give people skills that would empower them to build support networks, to self-reflect, to learn to heal from emotional pain

and to solve problems using creativity and innovation no matter how difficult or challenging the situation [4,5].

The FWB approach to empowerment has four main components which often occur in parallel rather than sequentially. The first step is to establish the setting. People are brought together in small interactive participant groups and introduced to the premise that as individuals they are responsible for their own wellbeing; that they have the capacity to take control of their lives and make positive changes to improve their day-to-day situation, no matter how dire that may be. The second element involves the creation of a safe space where these ideas can be discussed and developed. This safe space is established through the development of negotiated group agreements and peer-support relationships based on confidentiality, respect, authenticity, empathy, sharing and trust. The third component shows participants, through experiential exercises, how to think and communicate effectively using human qualities such as creativity, innovation, perseverance, empathy, forgiveness, commitment and generosity. The fourth component aims to help participants recognize their own experience and knowledge, their strengths and basic human needs. Change is facilitated through exploring alternative ways of dealing with problems, difficult relationship patterns, violence and abuse, emotion, loss and grief, conflict and crisis. Participants are

also encouraged at this stage to open up and share their fears and their insights with others, to build support networks, practise problem and conflict resolution, identify change objectives and implement and monitor changes. The result of the process is that participants are not only able to exert greater influence and responsibility over their own situations, but they become agents for change in their family, workplace and community [4,5,6, 7].

On becoming aware of the Australian FWB research, researchers from the University of Papua New Guinea (UPNG) invited Australian researchers to participate in a collaborative project to explore the relevance and adaptability of the FWB program to the social, health and political challenges currently facing PNG. UPNG is the premier university for PNG and the Pacific, located in Port Moresby in the National Capital District (NCD). Its mission is to provide quality education, research, and service for nation-building and global advancement towards an innovative and empowered society [8]. Although PNG culture and society differs in many respects from the situation of Aboriginal Australians, the FWB's basic human – needs approach to empowerment was considered to be universal and hence potentially applicable to the “empowered society” vision of the UPNG.

It is believed that skills relating to core public health business such as disease surveillance, management and control tend to be adequately covered. However, public health students in the

School of Medicine and Health Sciences (SMHS) UPNG had no access to practical social health tools to enable and empower communities to take greater control and responsibility for building safer and healthier social environments so that individuals can achieve better health and wellbeing. This situation led to interest in the potential of the Australian program to fill the social health gap within the UPNG public health teaching program.

Based on train-the-trainer principles, the Australian team facilitated the introduction of the FWB program to staff and students in post-graduate public health courses at UPNG. There were three separate deliveries between 2009 and 2011 to over 100 [2,3] students with the goal of preparing the PNG partners to facilitate the program in their own right.

FWB was well received, and qualitative course evaluations demonstrated the relevance of the approach to many of the social and health problems confronting PNG, including interpersonal violence [2, 3]. The findings also indicated that the approach was more likely to be sustained when integrated into existing education courses. UPNG saw the relevance of FWB for equipping health professionals to better enable and support family groups, communities and organisations to improve health and wellbeing at local levels, and officially incorporated the program as a core subject within its public health training [3].

Since 2012, some of those that participated in the FWB program have routinely facilitated FWB empowerment training with other public health students in their own right. This paper follows on from the previous research to examine the effectiveness with which the UPNG partners have adapted and facilitated the FWB course.

METHODS:

Study Design: Based on previous FWB empowerment evaluation in tertiary settings, a sequential exploratory mixed-methods design was adopted in which quantitative measures were piloted to test their sensitivity and complement qualitative workshop evaluation data [9]. The main question guiding the study was: how effective is the uptake and implementation of the Aboriginal FWB empowerment program in the context of UPNG public health training? Program uptake and implementation was considered effective if the FWB delivery by UPNG research partners achieved comparable results to those of the initial study.

Participants and Setting: Two groups of public health students participated in the study as part of their public health training at the Division of Public Health (DPH), SMHS UPNG. One group consisted of 10 part-time distance education students who attended a 1-week intensive FWB workshop during a six-week residential school. The second group

consisted of 20 students who studied on campus full time.

Measures: To assess program uptake and implementation effectiveness, qualitative workshop evaluation outcomes were assessed and compared with those of the initial feasibility pilot study [2,3]. The aim was to determine the extent to which local UPNG researchers took up and implemented the program to achieve outcomes similar to the initial Australian partner-led feasibility pilot study. A standardised FWB workshop evaluation questionnaire was administered immediately after the end of the intervention. As well as collecting demographic data (age and gender), Part 1 of the qualitative questionnaire asked participants to provide feedback on what they liked and/or disliked about the program; the extent to which their expectations were met; how they intended to use FWB skills within family, workplace, and broader community settings and to suggest ways to improve the program. Part 2 of the questionnaire used a 10-item Likert scale to gauge the extent to which students perceived FWB as relevant to PNG, and their level of understanding and confidence in using the knowledge in their family and professional roles. Students were asked to what extent they agreed or disagreed with statements such as “family wellbeing is relevant to PNG” and “after doing this course I feel really competent to teach it”.

Quantitative pre and post surveys were used to: 1) understand the students' wellbeing prior to the intervention measured by levels of safety and violence in their social environments, psychosocial empowerment and subjective wellbeing; and 2) investigate changes in responses after the intervention measured by the Australian-developed surveys using effect size approach.

The first aspect is addressed using 5 questions taken from the Australian Bureau of Statistics (ABS) Personal Safety Survey (10,11). Three questions use a nominal scale (yes/no answers); two use an ordinal scale ranging from 1 (very unsafe) to 5 (very safe). A key objective of the Personal Safety Survey (PSS) is to measure perceived levels of violence in the participants' social environment. For the purposes of this survey, violence is defined as any incident involving the occurrence, attempt or threat of either physical or sexual assault experienced by a person during the 12 months prior to the survey.

Psychosocial empowerment is measured by the Growth and Empowerment Measure (GEM14) developed specifically to evaluate psychosocial empowerment among FWB participants [12]. This tool consists of 14 items, and has 3 subscales: the "Inner Peace" subscale (items 2, 3, 4, 10, 11, 12, 13, and 14); the "Self-Capacity" subscale (items 5, 6, 7, and 9); and "others" (items 1 and 8) which address strength, happiness, and connectedness. All items on the GEM14 are rated on a 5-point

scale between two extremes. For example, for item 1, which asks about knowledge, the lowest point on the scale is "I feel like I don't know anything", while the highest is "I am knowledgeable about things important to me". The measure provided an overall score (maximum score =70), as well as scores for each of the three subscales. The final measure, the Australian Unity Well-Being Index, is a scientific measure of "subjective wellbeing" [13] which asks people to rate their satisfaction from 0 (completely dissatisfied) to 10 (completely satisfied), across eight aspects of their personal life: health, personal relationships, safety, standard of living, achieving in life, community connectedness, spirituality or religion and future security. An overall score was calculated for this index (maximum score = 80). The survey questionnaires are presented in Annex 1.

Data Collection: The study was approved by the Human Research Ethics Committee at James Cook University (JCU), Australia and the SMHS UPNG Research and Ethics Committee. The purpose of the questionnaires was explained to the student participants. They were also told that completion of the questionnaire represented their consent to participate in the study, that participation was voluntary and that participants are free to withdraw from the study at any time. Pre and post intervention questionnaires were administered to Diploma of Public Health

students before and after the FWB program. The qualitative workshop questionnaire was administered during the final session of the workshops while the quantitative questionnaire was administered at the outset of the FWB training and between two to five months after completion of the FWB training.

The FWB intervention: The two groups of students attended a total of 40 hours of the FWB program as part of their public health training. Key FWB topics covered included group agreement, human qualities, basic human needs, understanding relationships, life journey, conflict resolution, understanding emotions and crisis, loss and grief, beliefs and attitudes and understanding interpersonal violence. Both groups attended the course during the same semester: the 10 distance education students attended a six-week intensive residential block, while the 20 on-campus students attended weekly 3-hour workshops over the 13 week semester.

Data analysis:

Qualitative: Student responses to the evaluation questions after the final session of the FWB training were combined and thematically analysed. This process was based on the 6 steps recommended by Braun and Clarke [14]: 1) familiarize ourselves with the data; 2) search for codes; 3) create themes; 4) review themes; 5) name and define themes and 6) write the report. To ensure rigor and

trustworthiness, the initial data coding and analysis was work shopped by three researchers through careful reading, independent coding and comparison of codes, and discussion and debate about preliminary themes. This collaborative work shopping also improved the effectiveness of the interpretive process [14]. Differences in interpretation were negotiated until consensus was reached. The data analysis workshop was intended to serve as a capacity-building exercise.

Quantitative: Participants were requested to complete the FWB questionnaire before and after the intervention. Given the relatively small sample ($n=30$) and unmatched pre-post surveys the approach to the analysis of survey responses was largely descriptive. A Wilcoxon signed rank test was conducted to assess changes between the average pre-post scores across the GEM survey, the Australian Unity Well-Being Index survey and Part 2 of the PSS. Differences between pre-post yes/no responses from Part 1 of the PSS were examined using Fisher's exact test. $P<0.05$ was reported for significance of results. Effect sizes were calculated to indicate the sensitivity to change of the GEM Scale, the three subscales and the Australian Unity Well-Being Index (AUWBI). Effect sizes (r) were calculated using the methodology of Berry et al. [15]. Cohen [16] suggests that r values greater than 0.5 may be considered large, greater than

0.3 may be considered medium and greater than 0.1 may be considered small.

RESULTS:

Study population demographics: Gender distribution of the 30 students that participated indicated that 56.7% (17/30) were male and 43.3% (13/30) were female. Distribution of the students according to age-groups showed that 6.7% (2/30) were in the ≤ 34 years age-group, 83.3% (25/30) were in the 35 to 54 years and 10.0% (3/30) in the ≥ 55 years age group. Overall, 30 students completed the surveys, with all completing the pre, and 28 completing both pre and post surveys.

Qualitative: The participants were mostly very positive about both the content and process of the FWB program. They saw it as highly relevant to personal, family and community needs given its potential to enable empowerment at each of these levels. There were a number of recommendations as to how the program could be taken forward by gaining endorsement from national health leadership and being integrated into current health strategies and professional curricula. These results are presented as three broad themes, each theme comprising several sub-themes supported by quotes from students. To ensure anonymity, quotes are not identified by student names, but rather by numbers in brackets.

FWB content and process: Participants said FWB was very helpful and relevant to their personal, family and community health: for example, one student said “The program of FWB is very important and improve the standard of living within ourselves, family and community as a whole, for health and living condition” (7). They found the program content to be “clear and easy to understand” (1). Many participants said they liked all of the program topics: “Almost every topic covered and learned a lot of new information” (8). When asked what they didn’t like about the program, all of those who answered this question said that there was nothing they didn’t like and that everything was helpful.

Participants referred to specific topics they liked. One student said: “The thing that I like best or useful in the training was about the Life Journey and the support I get along the Life Journey” (21). Others mentioned the topics of conflict resolution, basic human needs, human qualities, emotions, grief and loss, the process of change and addressing family violence. The topic most frequently mentioned was-understanding relationships. Several students appreciated learning about research as part of the program: for example, one student said: “I find it useful and interesting in doing field trips, doing research and writing project proposals on Family Wellbeing” (19).

The process of FWB learning was highly valued, particularly the extent to which students participated in the learning process. They said

that they enjoyed class discussions and sharing their personal experiences. One student noted the learning associated with hearing about others' experiences and "...challenges they have conquered..." (14). They also enjoyed making class presentations: one student said that they "like the presentation- It involve us to take part" (22). There were some positive comments made about the quality of facilitation: one student said the program "was taught clearly" (4).

Whilst most students found the program process useful and helpful, a few participants found some aspects challenging. One student found it hard to talk about personal issues, feeling there was an expectation that they talk about "Some private issues that need not be exposed in public" (13). A number of students felt they needed better program resources, including handouts, videos and training modules. Other participants had ideas for improving the process of program delivery such as allowing more student involvement "...because the participants have a wealth of experience to share at present that would generate more discussion" (14). Several people noted the importance of facilitator training: "This course should be conducted by a proper Trainer who have attended the TOT (Training of Trainer)" (15); "A full two week Training of Trainers for family wellbeing must be conducted" (23). Another person suggested that if students are asked to run program sessions they need adequate time to prepare

and "...more support from the facilitator" (22). Others suggested that more time be allocated to program delivery: "...we didn't have much time to go through all the topics."(15). Whilst one thought it would be better if the training ran for "two weeks"(8), another thought better use could be made of the time available, for example participant groups could undertake group homework before presenting "...so we really understand the topics." (11).

Personal and Community Empowerment:

Participating in FWB led to some important outcomes for participants. Many referred to their own personal growth and empowerment. This helped them in their relationships with others and provided a vision of how problems could be addressed at the community level. At a personal level participants reported a number of elements relating to personal growth, including enhanced self-awareness. One person said of the program that "It equips me to see my own strength and weakness" (3). Another person became more in touch with their inner qualities: "discover my inner qualities and know myself..." (2).

FWB topics provided frameworks for understanding others and building relationships, for example: "I was able to ...express my feelings openly with others" (2); "...able to listen to other people and understand the needs" (1). Participants applied these frameworks to their work situations, thereby enhancing their professional capacity.

One person provided an analysis of the problems facing the PNG health system and how such problems might be tackled: "I have experienced the broad ideas in the system of management in the problem areas of how the problem in the health system was discovered."(6)

All of these outcomes helped participants to feel more confident. They spoke of feeling empowered and motivated: "It really motivated me because it empower me and build my capacity in the line of my duty" (5); "I am a changed person, because this course helped me to evaluate myself and at the same time, has empowered me to do more for other people" (18); "It will help me to solve problems in the family and the community and also lead by example." (7).

Many participants called for the program to be taken to workplaces and to communities: "...to widen the program out to the community and workplace."(7); "This program needs to go out and reach other people or health workers who really need to change" (16). They could see the program's potential to enable community capacity: "...to create a behaviour change and empowering the community to be responsible for their own health, this would involve capacity building and capacity development within families and community approaches through problem solving" (20). They highlighted the programs relevance for the PNG contemporary social context; "Their ways of living can change and adjust in a healthy way of living and

thinking" (7); and "This course is relevant for PNG and should be adopted and sustained" (10).

Taking the Program Forward: A range of measures for taking the program forward were identified. These included gaining National Department of Health (NDOH) support: "it must be communicated to the National Department of Health for sanctioning" (23). One participant suggested the program be delivered first in more stable communities: "I believe if FWB is to make any impact in the country, it has to start in the family or the particular village which is lawless free. When people start seeing some changes, it can expand". (21) Some suggested integrating the FWB program into existing village health education programs: "Problem solving by leaders, pastors and councilors and Village health worker in hygiene and health education." (6); "Can link with the Provincial health advisors- about the program so that this program can be implemented in the districts by each trainer." (22).

Participants also commented on some of the more practical issues associated with program delivery including training, funding and evaluation. One person suggested that "Training of Trainers should be conducted throughout the provinces" (15). Others thought the program could be integrated into existing training programs in public health, community health, nursing and education: "... be integrated into one course of the public health

course in Community Health or other subjects” (10); “...other schools like the nursing colleges as well.”(14); “This course should be included in the Education, UPNG Training Curriculum for all students to learn as well” (15). One student highlighted the need for funding: “I for one, I will go and implement this program, but I need some kind of funding to run this program” (9). Finally, the need for ongoing research and evaluation was mentioned: “...we need to do a research on this FWB...to see how this will help community” (17). The results from the open-ended evaluation data were largely confirmed by analysis of the Likert scale data regarding FWB relevance to PNG and levels of understanding and confidence to use the knowledge. After completing the FWB training, 73% of students said they understood what FWB was about, while about one third of the students (27%) were not so sure. The majority of students (95%) were interested in doing more FWB courses delivered by UPNG/JCU in the future (Q8) and indicated that they felt competent to implement aspects of FWB themselves (Q9). 90% of students felt changed, empowered and confident to use the FWB knowledge and skills after the training. All students felt that they could carry out small projects to introduce FWB to local communities as part of their study assignments (Q10). The majority of students nominated Health

Promotion/ Education (80%), Child Health (70%) and Community Health (70%) as the priority areas where they would like FWB to be incorporated.

Quantitative: Statistical analysis was conducted to examine the effects of the FWB intervention by comparing students’ mean responses before and after participation in the FWB workshops. Results indicated no statistically significant variation for the three components of the FWB questionnaire (Table 1). All three survey results revealed non-statistically significant negative change in post vs pre-scores signifying deterioration in attitude from before the intervention to after.

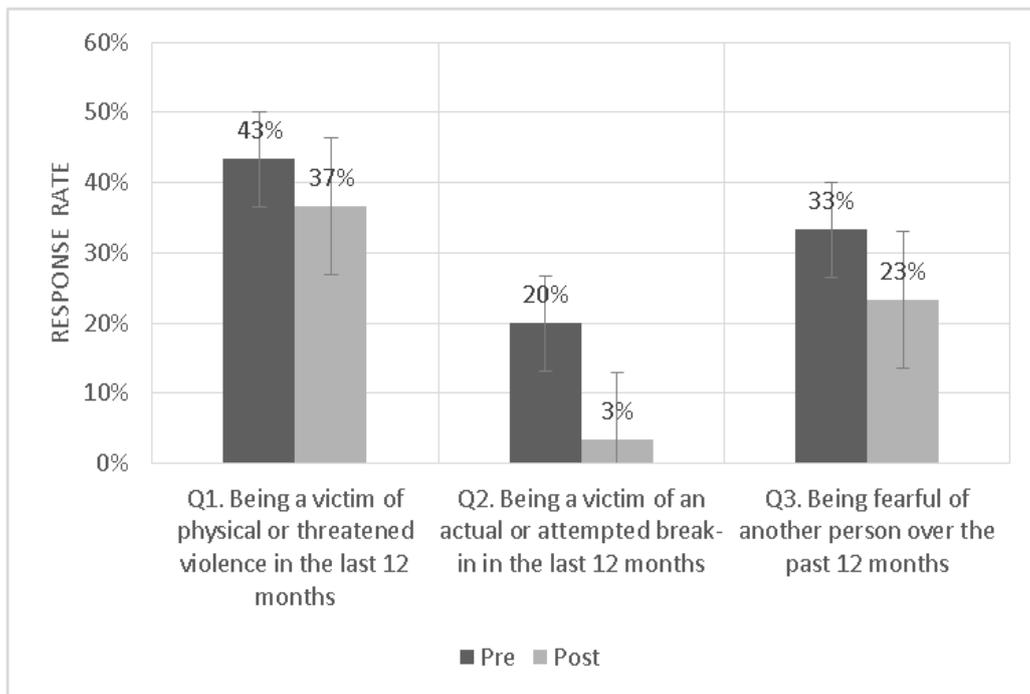
Personal Safety Survey (PSS): The PSS revealed staggering statistics. 43% of the students reported being the victim of actual or threatened violence in the previous 12 months; 33% reported being fearful of another person and 20% being a victim of an actual or attempted break-in (pre-survey scores). 92% of the victims knew the person who harmed or threatened them. 67% knew the person who broke in or attempted to break in. 90% knew the person who made them fearful (Fig 1). The students reported that they were less confident about personal safety at home during the day and night after the intervention, Fig 2.

Table 1: Summary of results from Wilcoxon Signed Ranks tests comparing scores (pre and post) and sensitivity to change

Measure	Pre		Post		N-ties	Z	p-value
	Mean	SD	Mean	SD			
GEM: Scale: 1 (feel least); 5 (feel most)	4.30	0.44	4.03	1.18	25	-0.108	0.912
Australian Unity Well-Being Index. Scale: 1 (completely dissatisfied); 10 (completely satisfied)	7.97	1.22	7.88	1.13	28	-0.330	0.741
Personal safety (Part 2) Scale: 1 (very unsafe); 5 (very safe)	4.00	1.12	3.93	1.44	24	-0.029	0.976

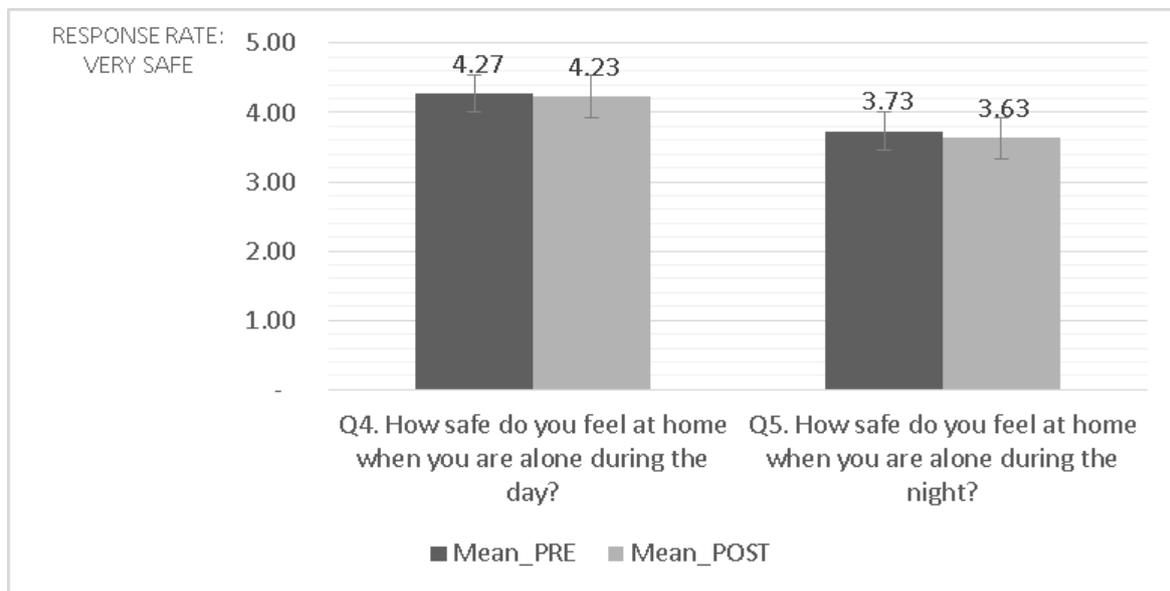
*The result is not significant at $p > 0.05$

Figure 1: Personal Safety Survey results. Part 1



{*Error bars represent standard errors (SE). When SE bars overlap, the difference between the two mean scores is not statistically significant ($p > 0.05$)}

Figure 2: Personal Safety Survey results. Part 2



{*Error bars represent standard errors (SE). When SE bars overlap, the difference between the two mean scores is not statistically significant ($p>0.05$)}

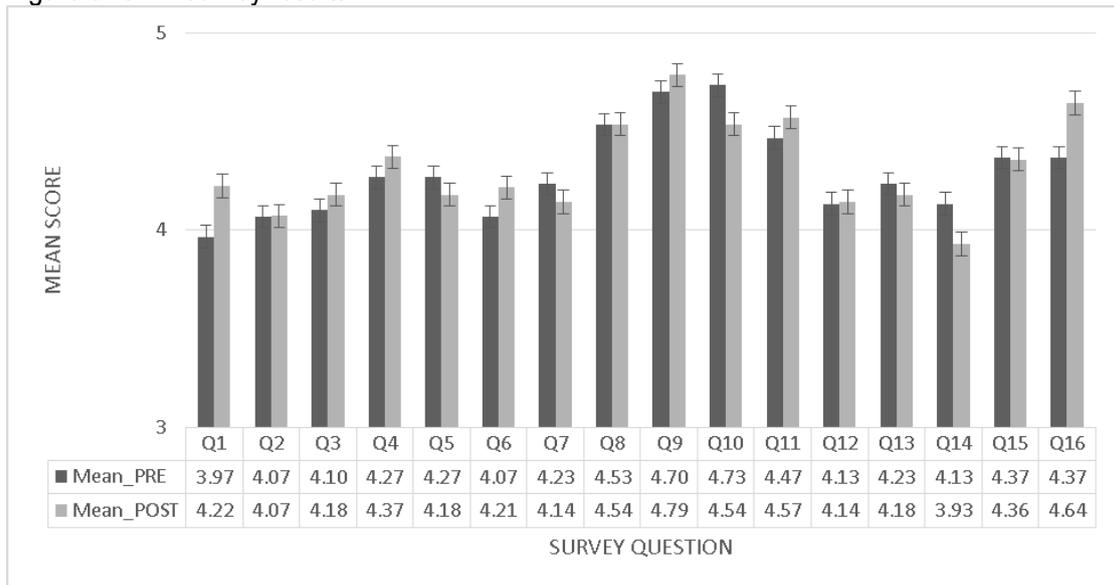
Growth and Empowerment Measure (GEM):

The intervention had the greatest positive effect on the students' perception about things that are important to them, (Q1) "I am knowledgeable about things that are important to me", and the ability to cope with threats, (Q16) "If I was threatened by someone I knew, I am confident I could take steps to avoid conflict". On the other hand, the students scored negatively on their self-confidence after the intervention, (Q10) "Mostly I feel shame or embarrassed" (Figure 3).

Australian Unity Well-Being Index survey (AUWBIS):

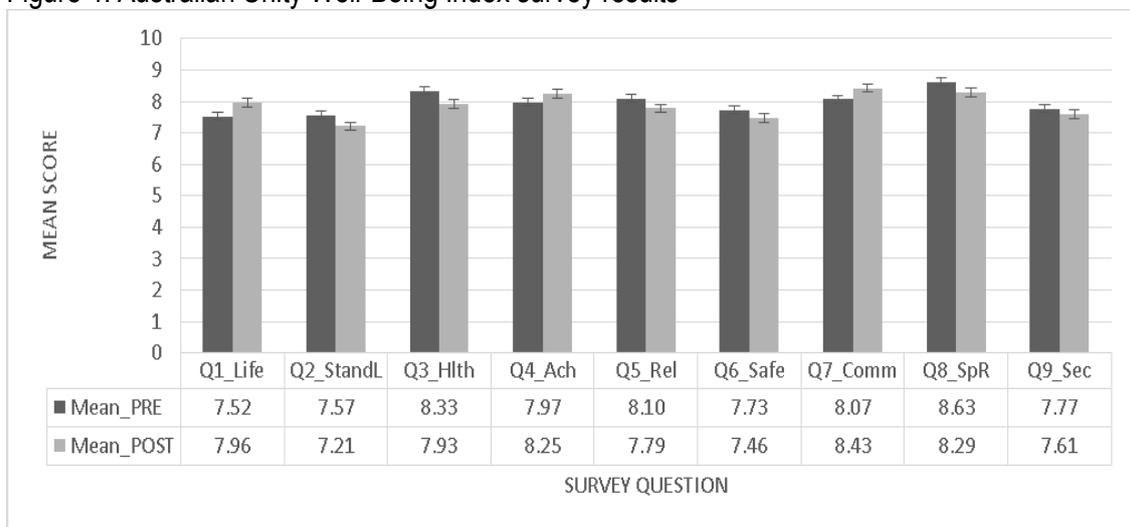
The students scored the greatest satisfaction with being a part of their community (Q7) and spirituality (Q8), and the least satisfaction with standards of living (Q2), safety (Q6) and security (Q9), both prior to and after the FWB workshops (Figure 4). Intervention positively affected, though not statistically significant, students' views towards being part of the community (Q7), satisfaction with achievements in life (Q4) and life as a whole (Q1) (Figure 4).

Figure 3: GEM survey results



{*Error bars represent standard errors (SE). When SE bars overlap, the difference between the two mean scores is not statistically significant ($p>0.05$)}

Figure 4: Australian Unity Well-Being Index survey results



{*Error bars represent standard errors (SE). When SE bars overlap, the difference between the two mean scores is not statistically significant ($p>0.05$)}

DISCUSSION:

The aim of the study was to determine the effectiveness of the Aboriginal Australian FWB program in the context of public health training at UPNG; specifically, the effectiveness of the uptake and implementation of the program by local UPNG partners.

The qualitative feedback from students regarding the effectiveness of the program uptake and implementation was overwhelmingly positive. Students found the FWB program content and the participatory learning-by-doing style highly relevant and empowering. Topics such as basic human needs, conflict resolution, relationships, beliefs and attitudes were identified as particularly useful tools for building healthier relationships and for helping to address high levels of interpersonal violence in PNG. Students felt that participating in the FWB gave them the skills, confidence, and motivation not only to improve their own health and wellbeing but also to help family members and their service clients do the same. Overall, participants saw themselves as potential role models and FWB champions in their respective communities and work settings and offered practical suggestions and recommendations as to how the benefits of FWB might be maximised and sustained in PNG.

These qualitative findings are similar to those of the initial train-the-trainer pilot study conducted in PNG by the Australian partners.

Participants in that initial pilot perceived the FWB emphasis on participation, dialogue and routine questioning of one's cultural beliefs and attitudes as bringing them back to their origin to carefully consider and take what is good from their past, combine this with ideas from the outside world and thereby create authentic new ways of tackling complex health, social, economic and political challenges facing PNG [1]. These findings are moreover similar to numerous discrete qualitative evaluations conducted in a wide variety of settings across Australia over the years [4,5,16,17]. The fact that PNG partners were able to facilitate the FWB program in their own right and achieve results similar to other FWB deliveries clearly confirms the effectiveness of local uptake and implementation. Criticisms of the delivery were in the main constructive and focused largely on logistic issues such as the need for more time to do the training properly, appropriate learning resources tailored to PNG cultural contexts and that initiatives such as FWB must be recognised, supported and resourced within PNG health and other policies and programs in order for the program to be meaningfully implemented.

While the qualitative feedback revealed a positive impact of the FWB program on participants' sense of wellbeing, the same cannot be said for the quantitative findings. In contrast, quantitative results showed only minor improvements across the three self-reported

wellbeing measures after the intervention and in some areas the situation deteriorated. The intervention had the most positive effect on the students' perception of being knowledgeable about things that are important to them, their ability to cope with threats, and the confidence that they could take steps to avoid conflict if they were threatened by someone they knew. On the other hand, the students scored more negatively on their overall confidence after the intervention.

A possible explanation for the discrepancy between the qualitative and quantitative findings is the fact that the measures were developed and validated in Australian contexts so that language and other cultural nuances may have been problematic in the PNG context. The students were however health professionals undertaking tertiary studies and hence language was unlikely to be a major issue. A more plausible explanation, based on discussions with academic staff and students who undertook the FWB training, is the timing of data collection. The qualitative data were collected immediately after the students completed the FWB training and were full of enthusiasm for the course. The follow-up (post) quantitative data on the other hand were collected between two to five months after students completed the training. Whatever the reason for lack of improvement on the quantitative measures before and after the FWB intervention, the design of measures for programs of this nature, especially across

cultural contexts, remains an issue that needs further exploration.

Despite the inconclusive quantitative results, the training in FWB did prepare staff and students to go through a crisis later that year when there was a major confrontation with the military. On that occasion (September 2013) armed soldiers entered the university campus following a previous altercation with some university students outside Port Moresby General Hospital. The university hospital campus where health and medical sciences students including the FWB participants studied was subsequently temporarily closed and students moved to the main university campus about 8.0 km across the city (from Taurama campus to Waigani campus). Many students and staff were traumatized by this experience. Even though students were traumatized, many of them expressed, through reflections, that FWB helped them to go through the crisis by effectively managing their feelings following the confrontations. Students found FWB topics such as crisis, emotions and conflicts particularly useful in coping with the crisis.

The frequency and nature of the violent confrontations between university students and the military in recent times, which in many ways reflects growing concerns regarding interpersonal violence in PNG in general [18,19], highlight both the possibilities and the limits of interventions such as FWB. On the one hand FWB gave students practical skills to build healthier relationships and with

interpersonal conflicts constructively. On the other hand, the levels of trauma, fear and anger experienced by students during the military confrontation clearly show the limitations of empowerment programs such as FWB as a one-off activity. These circumstances highlight the need to routinely reinforce such skills through support networks, refresher programs and other mentoring mechanisms.

This study has some limitations. The sample size was small and the study was conducted as part of routine public health training so the timing of program facilitation and data collection had to fit in with the requirements of the faculty teaching timetable. Not surprisingly, participants raised concerns about there not being enough time to cover all the topics. Further, the study had no funding support and was conducted as part of routine teaching, with remote academic support from Australian partners. Lack of resources combined with timetable constraints meant, for example, that the Australian Unity Well-Being Index measures were not piloted before being administered to the students. Many commentators including Crossley [21] Vullimay [22] and Bray [23] noted that when transferring social and educational programs especially in the realm of comparative education and models from other contexts and settings we should be cautious as they are fraught with threats and

are bound to be incompatible. Therefore, it is encouraging that careful analysis has gone into compiling the results of both statistical data and thematic evidence and ensuring discussion, in particular the emphasis it places on the applicability of the FWB in PNG. Despite the limitations, the study is significant in the sense that it largely confirms the findings of previous PNG and Australian studies [2,3]. It shows the effectiveness of the uptake and implementation of the program by local PNG partners in the public health training context. The study also highlights the need for appropriate and well-tested quantitative measures as well as dedicated research funding support in order to improve the evidence-base of social health interventions such as FWB in the context of PNG.

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Annex 1: SURVEY QUESTIONNAIRES:	
Table I: Growth and Empowerment Measure (GEM survey questions)	
#	QUESTIONS
Q1	I feel like I don't know anything
Q2	I feel like I don't know how to do much of anything
Q3	I feel slack, like I can't be bothered to do things even when I want to
Q4	I feel unhappy with myself and my life
Q5	I am held back from what I could do, there are no opportunities for me
Q6	I feel that other people don't admire or value me
Q7	Have no voice. I can't express myself. Nobody listens to me
Q8	I feel isolated and alone, like I don't belong
Q9	I am not hopeful that anything will change for me
Q10	Mostly I feel shame or embarrassed
Q11	I do things for other people all the time. I am not looking after myself or my family well
Q12	I am always worrying and nervous. I can't relax or slow down
Q13	I live in fear of what's ahead
Q14	I feel a lot of anger about the way my life is
Q15	If I was threatened by another person, I have no-one close to me who would help and support me
Q16	If I was threatened by someone I knew, I would not know what to do

Table II: Australian Unity Wellbeing Index survey questions	
#	QUESTIONS
	Thinking about your own life and personal circumstances:
Q1	How satisfied are you with your life as a whole?
Q2	How satisfied are you with your standard of living?
Q3	How satisfied are you with your health?
Q4	How satisfied are you with what you are achieving in life?
Q5	How satisfied are you with your personal relationships?
Q6	How satisfied are you with how safe you feel?
Q7	How satisfied are you with feeling part of your community?
Q8	How satisfied are you with spirituality or religion?
Q9	How satisfied are you with your future security?

Table III: Personal Safety survey (PSS) questions	
#	QUESTIONS
Q1	Have you been a victim of physical or threatened violence in the last 12 months?
Q1a	IF YES to previous question, did you know the person who harmed or threatened you?
Q2	Have you been a victim of an actual or attempted break-in in the last 12 months?
Q2a	IF YES to previous question, did you know the person who broke-in or attempted to break-in?
Q3	Has another person made you fearful over the past 12 months?
Q3a	IF YES to previous question, did you know the person who made you fearful?
Q4	How safe do you feel at home when you are alone during the day?
Q5	How safe do you feel at home when you are alone during the night?